

Chemical Week

December 10, 1955

Price 35 cents



Look for a new target in next year's foreign-trade battle: import quotas—not tariffs p. 20

▶ **Shoals aplenty beset course of Washington-bound chemical executive p. 23**

Key to two new syntheses of dicarboxylic acids: finely dispersed sodium p. 60

▶ **3M's Ulrich, Flesch, Brink: their 'big meeting' clears communications hurdles p. 76**

Doubled in five years, HF output must go higher to meet aerosol, air conditioning needs . . . p. 91



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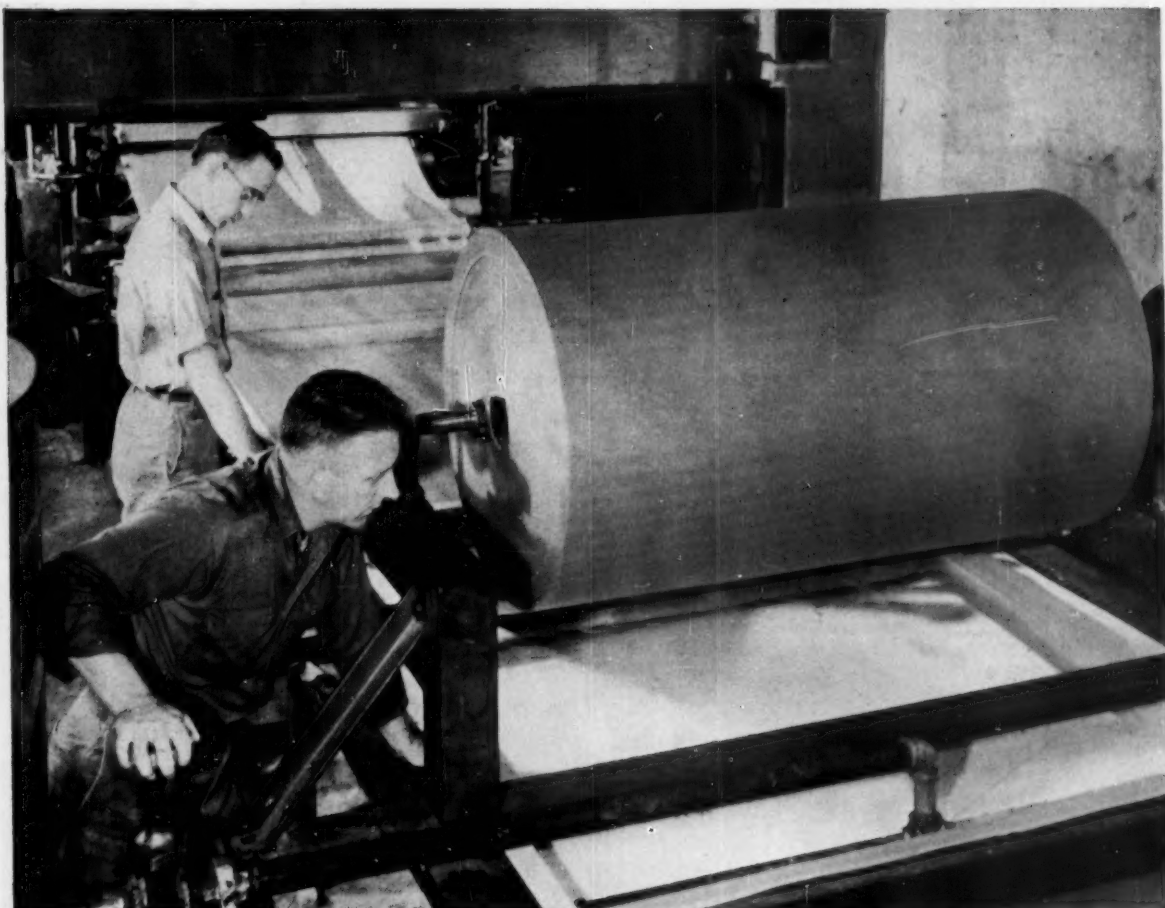


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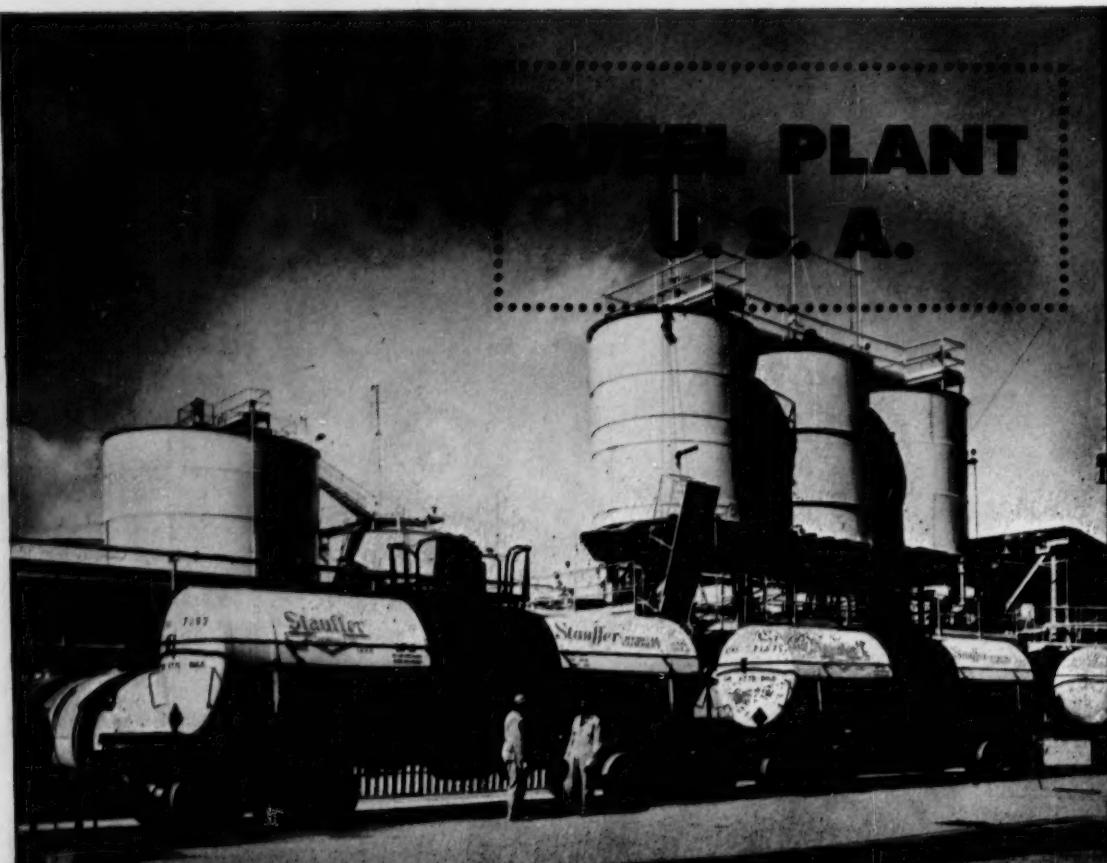
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STAUFFER  **CHEMICALS**

December 10, 1955

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Chemical Week

TOP OF THE WEEK

West German chemical workers are getting higher wages and fewer hours, but despite larger percentage gains there, U.S. labor costs are rising fasterp. 26

Mississippi River threatens to change course, leave Louisiana plants high and dry; but the U.S. Army has plans to keep it in its channelp. 28

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Macco Corp.	

OPINION

Examiners Needed

TO THE EDITOR: There is a serious delay in the processing of patents in the U.S. Patent Office because the size of the examining staff hasn't kept pace with the increased number of applications filed . . . This is a matter that seriously affects the chemical process industries . . . creates uncertainty as to the patent status of new products and processes . . . tends to slow down their adoption and introduction . . . This can handicap a large corporation . . . be critical for the individual inventor or the small business . . .

Even though Congress has appropriated additional funds . . . it has been impossible to obtain enough candidates to fill out the examining staff . . . This is a matter of national concern . . .

The Patent Office has immediate openings for engineers and scientists . . . Details are available from the Commissioner of Patents in Washington . . .

You would render a service to the industry if you were to advise your readers of this critical situation . . .

HENRY E. SHARPE
New York Patent Law Assn.
New York

Smog Eradicator

TO THE EDITOR: In a footnote (Nov. 19, p. 127) you attributed the following views to the Air Pollution Foundation: " . . . that use of Houdry catalysts in mufflers is economically infeasible. It feels that most promise lies in use of afterburners, or some type of catalytic converters, in combination with several other factors."

That statement, as you printed it, is misleading and unfair to the Houdry organization. Because the current Houdry catalyst is susceptible to lead poisoning, it may be used only on automobiles using unleaded fuel. It was the combination of the Houdry catalyst and unleaded gasoline that was found to be economically infeasible, largely because of the increased cost of unleaded gasoline of sufficient antiknock quality to power modern automobiles.

The Houdry organization (Oxy-Catalyst, Inc.) is currently trying to develop a catalyst that is insensitive

to lead for use in catalytic converters attached to automobiles that use leaded gasoline. If the performance and life of such a catalyst are adequate, it may well turn out to be an effective and economical method of reducing air pollution from automobile exhaust . . .

W. L. FAITH
Vice-President and Chief Engineer
Air Pollution Foundation
Los Angeles

Gas Additives

TO THE EDITOR: In your prescient appraisal of "chemical additives for gasoline and automotive lubricants," (Nov. 12, p. 95), Messrs. Kuhn and Hutcheson did not mention "antistalling agents in gasoline."

Vaporization of gasoline upon injection into the carburetor is a cooling phenomenon. During the winter, moisture in high-humidity intake air condenses and freezes on the carburetor jets, causing the automobile to stall. To prevent this, several major oil companies incorporate about 1% alcohol in the gasoline. The alcohol acts as a freezing-point depressant for the condensed moisture.

Deicers (methanol, isopropanol and ethanol) are used only in premium gasoline consumed in cold climates. Standard Oil of New Jersey, Standard Oil of Indiana, and Sinclair Oil are reportedly among about a dozen petroleum companies using deicers. I estimate upwards of 200 million lbs. of antistalling-alcohol is used annually.

KENNETH R. KERN
Market Research Analyst
Baltimore, Md.

Pulp's Future

TO THE EDITOR: Your Business Newsletter (Oct. 22) says that "the pulp and paper industry in British Columbia is in for some pretty hefty competition in the next few years" and cites as one of the reasons that "the rate of tree growth in South Africa and New Zealand is five times that of the British Columbia coastal area . . .

"We would . . . appreciate your advising us re the source of this rate of growth information . . .

It is our understanding that the

present growth cycle expected in British Columbia is about 70 years . . . a fivefold improvement would reduce the growth rate (in the countries you mention) to 14 years. I believe that I may safely state that there is no such experience anywhere in the U.S., including the so-called fast-growing southern pines, whose cutting cycle today is nearer 30 to 35 years . . .

We have previously sought to confirm such statements of rapid growth in other world areas and have been unable to verify them. In fact, we discovered that some of the New Zealand specie of eucalyptus that is being pulped is being cut at 200 and 300 years of age . . .

You also suggest that British Columbia producers are going to have difficulty meeting the challenge of this foreign competition. As you are aware, there has been a marked effort on the part of B.C. producers to recover wood residuals from sawmills that function on the Island and this has turned into commercial utilization a source of fiber previously burned . . . and at what is essentially a bookkeeping cost, compared with whole wood.

Without seeking to be contentious, and without having analyzed the location of customers of the British Columbia mills, you will appreciate that dissolving grades of market pulp are in demand in the Far East, and that there is an increasing demand for these Canadian pulps in the U.S. . . . Speaking before the Security Analysts of New York, Mr. Layton, vice-president of Crown Zellerbach, disclosed that his company is contemplating the bulk shipment of kraft pulp from a mill soon to be constructed in British Columbia . . . This pulp will be shipped in partly dewatered form to a linerboard mill located just outside San Francisco. We believe this to be the first time such a procedure will have been carried out . . .

JOHN C. ARMSTRONG
George S. Armstrong & Co., Inc.
New York

Reader Armstrong raises some good points. The rate of tree growth figures we quoted came from a report Victoria forestry consultant Bentley filed with the Sloan Commission (which is studying B.C. forest resources). It pointed out, too, that some other countries are regenerating their forests

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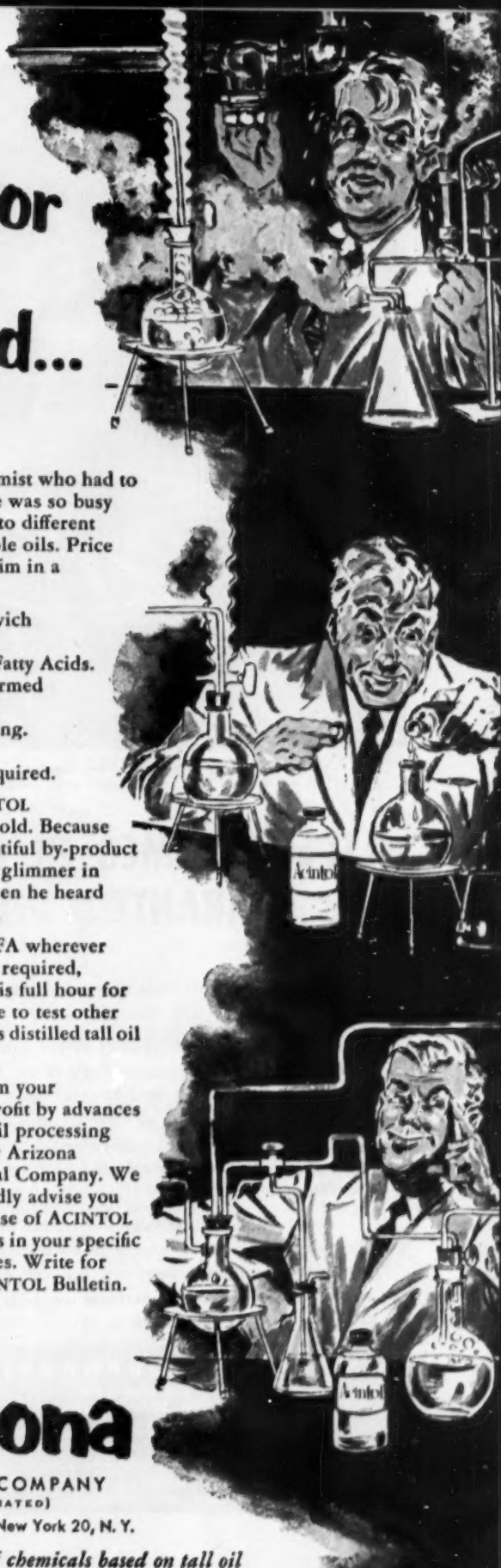


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OPINION

at a rate that would encourage them to make their own pulp and paper. (South Africa's new forestation is cited as between 25 million and 50 million acres, which would eventually give an annual growth of more than B.C.'s annual cut of 6 billion fbm.) In New Zealand, pine forests started 40 years ago now yield enough product to supply two pulp and paper mills and also allow for some export of lumber to Australia. Both developments, the report points out, foreshadow more rugged competition for British Columbia's industry.—Ed.

Odd Fun

TO THE EDITOR: Ours is becoming an odd civilization . . . You have reported on the addition of antibiotics to livestock feeds, the use of hormones to stimulate poultry growth, the compounding of special preparations to make hogs "beef up" faster . . . I have no special fondness for livestock or poultry . . . but all these shenanigans are enough to give a man pause . . .

And take what they're now doing to cows . . . Bad enough that scientists should decide to inoculate these helpless creatures with antibodies—so that a drink of milk becomes a treatment instead of a treat . . . now a scheme is afoot to use isotopes to trace everything eaten by a cow to its ultimate destination. The objective—naturally—is to eliminate everything from the diet that is not making an adequate contribution to the work going on in the udder . . .

With virtually every other kind of fun eliminated, the cow is now to be deprived of the pleasure of eating for its own sake . . . I'm glad, at least, that we haven't been quite that restrictive as far as humans are concerned . . . We still drink No-Cal . . .

ROSS L. DEEGAN
Joliet, Ill.

SEE YOU THERE

International Atomic Exposition, Cleveland Public Auditorium, Dec. 10-16.

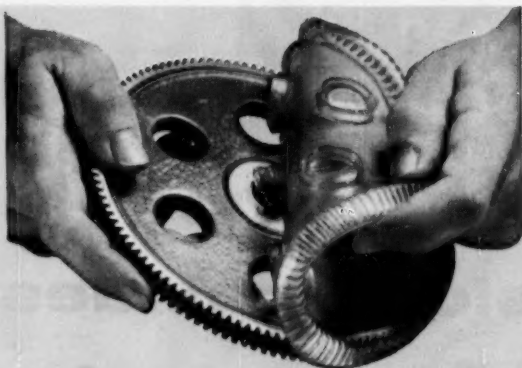
American Pharmaceutical Manufacturers Assn., midyear and Eastern section meetings, Waldorf-Astoria Hotel, New York, Dec. 12-14.

International Atomic Exposition, Cleveland Public Auditorium, Cleveland, Dec. 12-16.

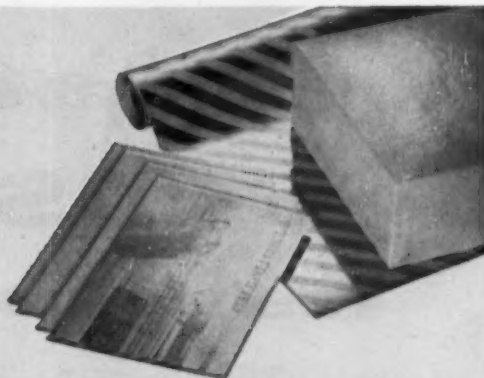
Chemical Market Research Assn., Webster Hall, Pittsburgh, Jan. 31 and Feb. 1.

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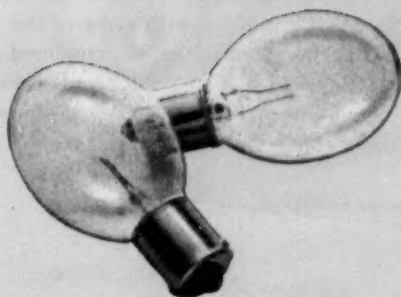
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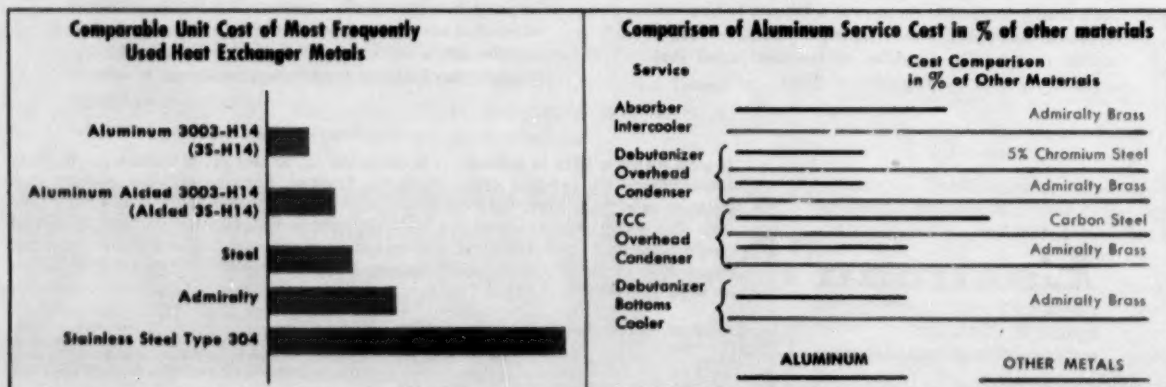
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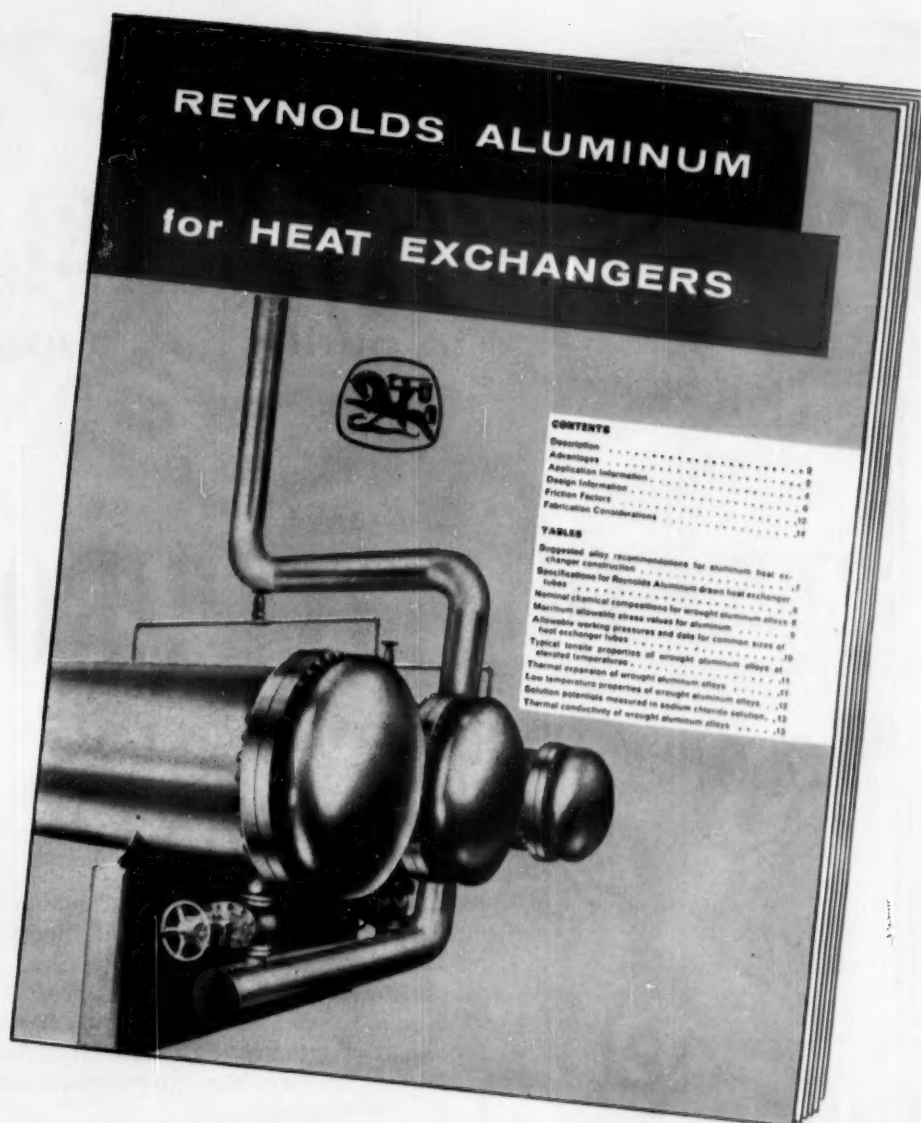
neers have prepared a sixteen page brochure titled "Reynolds Aluminum for Heat Exchangers." This booklet covers detailed engineering information necessary to the best use of aluminum in many types of heat transfer. The brochure, dealing with some of the varied application possibilities, is reproduced on the adjoining page. Copies of the brochure may be obtained by using the coupon in the lower right hand corner of this advertisement.

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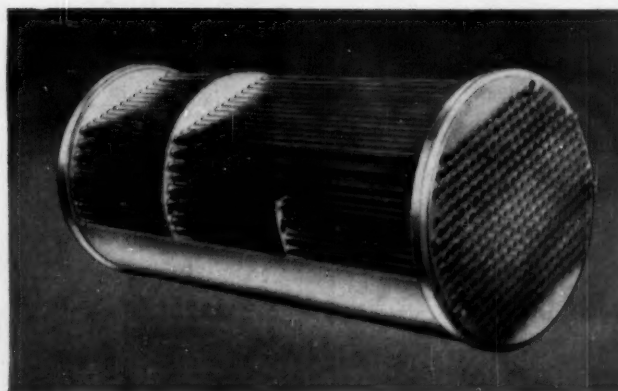


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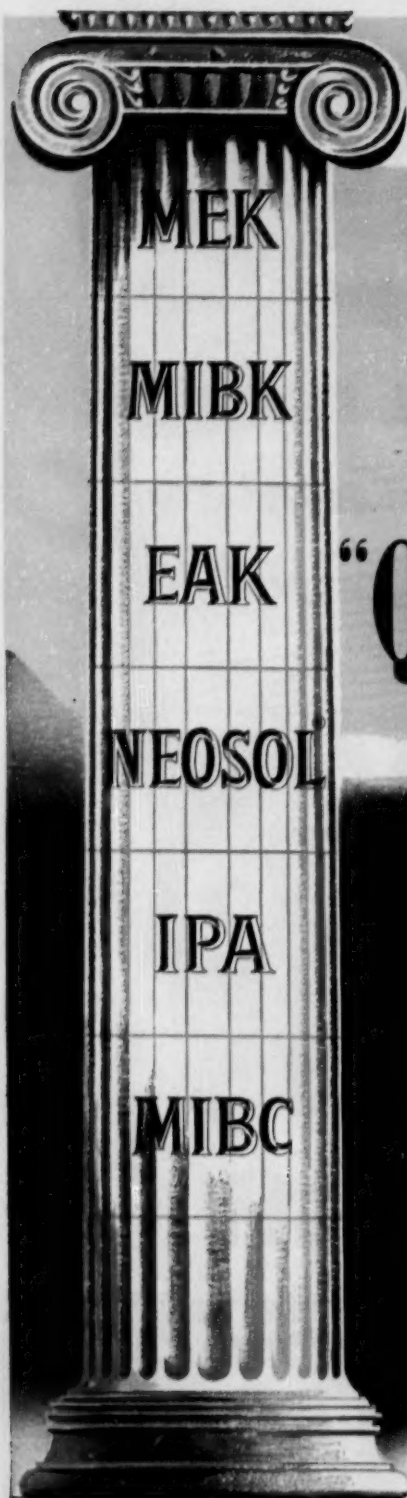
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Business

Newsletter

CHEMICAL WEEK
DECEMBER 10, 1955

Time is running out for companies that want to get a common stock split under the wire in 1955. Consensus now: that the Hercules split of three-for-one will be the last big spin-off for the current fiscal period; Du Pont's reported four- or five-for-one call won't come until late in the first quarter of 1956.

Chief reason behind the Du Pont directors' delay in splitting the company's common stock: the Internal Revenue Service has never ruled on the tax status of a distribution of GM stock to Du Pont, a large GM stockholder.

It is generally believed that such a distribution would be taxable as earned income unless Du Pont was forced into the distribution—as the result of a Justice Dept. ruling. But the issue has never been clarified—at least to the satisfaction of Du Pont legal advisors.

North of the border, the power shortage has finally caught up with Aluminium Co. of Canada, which has been forced to cut back aluminum production quotas because of last summer's drought in Quebec.

Company officials now predict that the cutback will mean a 5% drop in 1956 total predicted output for Alcan, but hasten to point out that the temporary curtailment will mean hardship only for consumers who get their aluminum from Quebec production facilities.

Alcan's aluminum facilities at Kitimat, and its expansion program at Isle Maligne, are not affected by the power shortage.

Note to fertilizer makers: keep an eye on highway and airport aid-to-states programs—being bandied about Washington these days—as the source of possible new markets.

The potential for plant food to promote grass growth on highway shoulders and airports has never really been exploited by most fertilizer producing companies. The few who've investigated the situation have found sales opportunities among state highway departments and turnpike authorities in Maryland, New Jersey, Pennsylvania and Virginia.

What could prove to be a trend-setter for future newsprint expansion programs was consummated last week in Florida.

Members of the Florida Daily Newspaper Assn. and a committee of the Southern Newspaper Publishers' Assn. voted to give "strong support" to Hudson Pulp & Paper Co.'s proposal to build a \$25-million newsprint mill in the Sunshine State.

The support will take the form of advance commitments for sales from the mill—covering specified amounts, and adding up to a substantial percentage (75%) of the mill's 100,000-tons/year capacity.

Best bet: Hudson will go ahead and break ground for the plant, and paper consumers in other sections of the U.S. will be hit with the same type of proposal soon.

Florida is last state on the totem pole in another respect this week, though. With approval by the Federal Power Commission of Pacific Northwest Pipeline Corp.'s purchase of 300 million cu. ft./day of natural gas from West-

Business Newsletter

(Continued)

coast Transmission Co., Ltd. (Canada), both Washington and Idaho will get their long awaited natural gas supply.

And only Florida remains—of the entire 48 states—without natural gas.

There was excitement in Mexico last week as two more U.S. chemical makers stepped into the production arena.

First to make the move: Heyden Chemical Corp., which has purchased a one-third interest in Salicilatos de Mexico, the company that is bringing a new salicylic acid plant onstream this week.

Also signing a contract: McKesson & Robbins, with Nacional de Drogas, S.A., for distribution and eventual manufacture of McK & R's products.

Both companies see the move as a step in the expansion of their export businesses; both plan production of other commodities in Mexico in the very near future.

Monsanto has a geologist from Grand Junction, Colo., sitting on a potash well being drilled this week five miles southeast of Crescent Junction, Utah. Partner in the deal is Oil Securities and Uranium Co.—a firm headed by N. G. Morgan, Jr., a Salt Lake City oilman.

The well is in a salt zone, with potash expected at 1,950 ft. New Mexican potash producers are frankly skeptical however, feel that Utah potash production is a big gamble requiring deep mining and costly operations.

They are speculating, therefore, that Monsanto's move may signal something other than a strictly potash producing venture.

A go-ahead was flashed to Aluminum Co. of America last week in its plans to build a new bauxite ore plant at Port Comfort, Tex.

Giving the go-ahead: the Board of Engineers in Washington, which has now approved construction of a \$16-million water navigation channel in Matagorda Bay. Both the Chief of the Army Corps of Engineers and the budget bureau must also agree to terms—but observers say that this is merely a formality.

Local Texas interests (mainly Alcoa) will pay half the construction cost of the channel; the remainder of the cash necessary to finance the 22-mile waterway will be put up by the federal government.

Three more requests for chemical tax write-offs were denied by the Office of Defense Mobilization last week. Included: National Distillers Products Corp.'s application for rapid amortization of a \$5-million sodium and chlorine plant at Ashtabula, O.; Glidden Co.'s request for a certificate for a \$365,000 pinene plant at Jacksonville, Fla.; and mid-South Chemical Corp.'s application for \$400,000 worth of inland waterway barges.

A significant estimate of the Canadian chemical industry was made last week by J. H. Shipley, research director of Canadian Industries, Ltd.

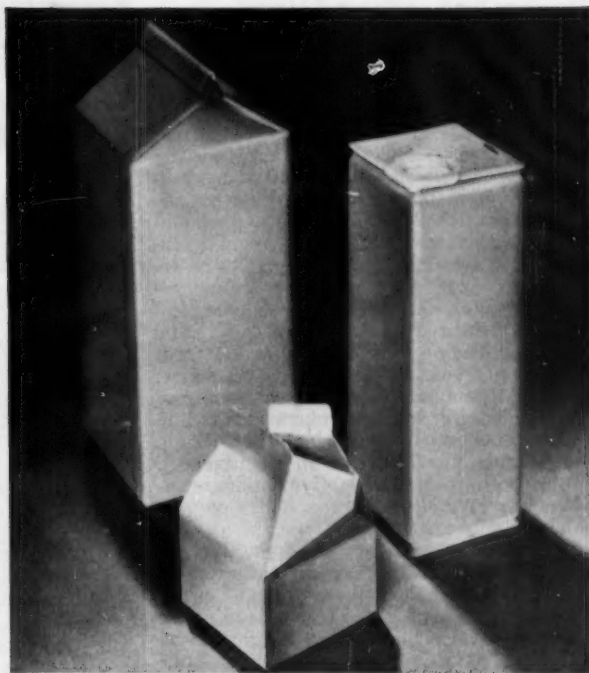
By year's end, he says, the output of chemicals and allied products in Canada will for the first time have exceeded \$1 billion. This compares with \$160 million in 1939—the best prewar year—and \$376 million in 1946.

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Such a wide variety of different chemical products presented quite a problem to Wright's packaging engineers. They knew the most practical and economical package was a steel drum, but many of their chemicals were not compatible with steel. Contact resulted in discoloration, contamination of the formula and a subsequent decrease in effectiveness. Drums with special protective linings, capable of holding their entire product line, seemed to be the only answer.

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The next time you have a packaging problem, call your Inland Steel Container representative. Inland's well-known reputation for solving the tough ones stands behind him.

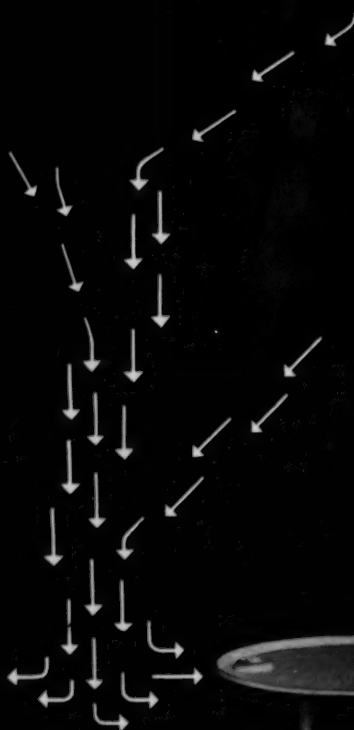
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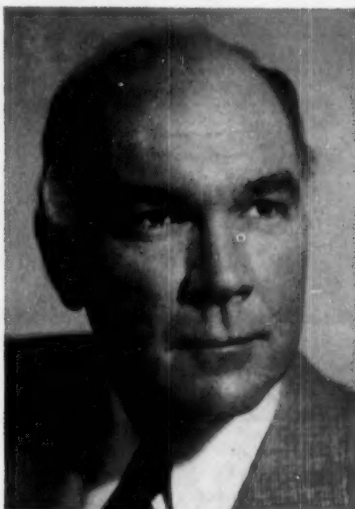
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BUSINESS & INDUSTRY . . .



HOOKER, McFARLAND: The former takes over, the latter kicks off . . .

SOCMA's Thirty-Fifth Year

Realigning its top command—in this, its thirty-fifth year of operation—the Synthetic Organic Chemical Manufacturers Assn. has elected R. Wolcott Hooker (vice-president of Hooker Electrochemical Co., Niagara Falls, N.Y.) president for 1956.

Sure to be one of Hooker's first tasks: Defense of "industries considered essential to the national defense—from foreign competition."

Following the line laid down by Samuel Lenher (of Du Pont) at recent Washington hearings, SOCMA reasoning will probably hold that the U.S. is committed to the policy of maintaining its industrial and manpower strength at levels necessary to resist aggression.

And, further: that the U.S. industrial mobilization base depends on many efficient industries—operating at a competitive disadvantage to their foreign counterparts.

For these industries, SOCMA claims, a defense exception must be made in the official foreign economic policy of the U.S.

Pleasure, Not Business: At last

week's annual meeting, however, the touchy tariff problem was relegated to the background by guest speaker Kenneth McFarland (General Motors' educational consultant). Shunning such controversial economic issues, he exhorted his listeners to concern themselves with their personal responsibilities—and thereby, as business and community leaders, to become "true lamplighters."

Appeal Scheduled

Makers of the coal-tar colors recently decertified from food use by the Food and Drug Administration will appeal to the Second Circuit Court of Appeals against FDA's complete ban on use of the colors in food.

They will challenge the "harmless *per se*" concept that the agency used in decertifying the colors FD&C Orange 1, Orange 2 and Red 32.

In addition to the suit, makers plan to ask the court for an order that would keep FDA from decertifying the colors until the court case can be adjudicated.

More 'Listening In'

Wire-tapping—in various forms—to check on chemical process company employees' telephone conversations has been going on to a greater extent than was first intimated, it appears this week.

In two separate hearings in New York City, witnesses from two cosmetics companies and one pharmaceutical firm have been telling of their experiences with "bugging" and "monitoring" of employees' phone calls.

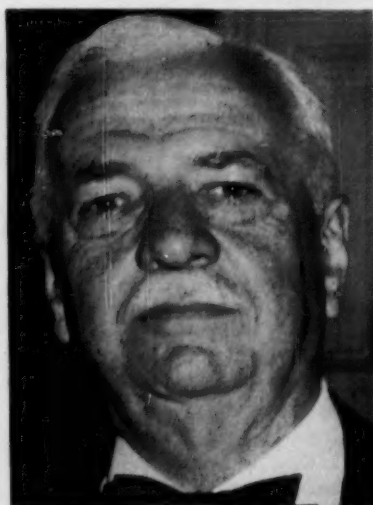
At a special three-day hearing before a committee of the New York state legislature, there was testimony about two quite different kinds of listening in:

- Board Chairman Raymond Spector of Hazel Bishop, Inc., said that his company's lines had been tapped, and that this must have been the means by which certain competitors obtained inside information about the company's business.

- Secretary - Treasurer - Controller William Heller of Revlon, Inc., told the committee that the New York Telephone Co.—at Revlon's request—is still monitoring Revlon phone calls; and that this has greatly improved employees' "efficiency, service and courtesy."

Both men condemned so-called "commercial wire-tapping" of competitors' telephones; Spector denounced that practice as "Gestapo methods."

In the criminal case against lawyer and private detective John Broady (*CW Newsletter*, Nov. 26), a principal witness for the state was Robert Porter, general counsel and secretary of Pfizer. Porter testified that he had paid Broady a total of \$60,000 to find out whether Pfizer employees were tipping off rival companies about tetracycline developments. The prosecution alleges that Broady also tapped the wires of two concerns that have been aligned against Pfizer in the tetracycline dispute: Bristol-Myers and Olin Mathieson's E. R. Squibb Division.



TOWNSEND, GERMAN: Square off again in scuffle over . . .

Return of Vested Property

It was open season on alien property in Washington last week as pending bills (before the Senate Judiciary subcommittee) came up for general discussion again.

But there's little real chance that the arguments presented will help resolve the issue—at least in the next session of Congress. Reason: the fight over return of millions of dollars worth of former "enemy-owned" property is still so fraught with politics, that most congressmen are frank in predicting a stalemate is inevitable—if any major changes in the Trading with the Enemy Act come up for Congressional vote.

As expected, however, last week's witnesses took their usual positions in the preliminary skirmishing.

Basic issue that separates most of them is whether all seized property—or its value—should be returned to former owners, or whether only individual claims up to \$10,000 should be paid. The latter approach would also remove the present legal obstacle preventing sale of a vested property when its ownership is being contested in U.S. courts.

Prize Package: The effect of either type of legislation on the future of General Aniline & Film Corp. got the lion's share of attention from all speakers. Administration witnesses again plumped for the bill proposed last year by the State Dept. and ap-

proved by President Eisenhower, which provides for a maximum return of \$10,000 to individuals and opens the way for sale of GAF.

Two witnesses representing GAF employees also supported legislation calling for sale of GAF to American interests.

But a parade of witnesses knocked down the Administration bill on various grounds. And Walter Germann, managing director of the Swiss holding company, Interhandel, renewed Interhandel's claim to GAF as a matter of right.*

Germann testified that far from serving as a cloak for German interests, as contended by the Justice Dept., Interhandel has "always been perfectly open in any transactions it has had with Germans." And further: although Interhandel has always been dominated by Swiss and American stockholders, German citizens never owned more than a minority interest in the holding company.

Also pleading Interhandel's case was General William J. Donovan, head of the U.S. Office of Strategic Services in World War II, and now a counsel for the Swiss holding company. Donovan argued that the decision in 1948 by the Swiss authority of review—that Interhandel was "truly Swiss"—

*Interhandel, which has been trying unsuccessfully for seven years to establish its claim in court, is now asking the U.S. Supreme Court to upset a lower federal court decision throwing out the Swiss suit.

is legally binding on the U.S. under the Washington accord of 1946.

Two more attacks of the Administration bill: Sen. Homer Capehart (R., Ind.) and former Sen. Tom Connally whose basic argument held to Senator Dirksen's line—that U.S. investments abroad would be endangered if the government does not return to former owners full value on property seized.

In Direct Opposition: For the Administration, Assistant Attorney General Dallas S. Townsend pleaded strongly against the bill sponsored by Senator Dirksen, which would make a sweeping return of alien property. Townsend says that the Dirksen bill makes no provision to guarantee that GAF, which would be the main asset affected, would not "eventually get get back into the hands of the German interests that controlled it before the war."

Townsend, in charge of the Office of Alien Property, claims that GAF suffers from "the inflexibility of government ownership" under present law. He points out that GAF would stay in government hands "indefinitely" unless Congress changes the sale and permits sale to U.S. interests.

Sitting on the fence is Senator Johnston, who hopes to be able to come up with some kind of an omnibus bill to include features of all pending bills, and will schedule further public hearings after Congress convenes in January.

Expected to Triple

If confidence is any criterion of success, the province of Alberta, Canada should be a booming chemical metropolis by 1975.

This strong note of optimism was voiced last week in a report (by the government of Alberta) to the government of Canada.

The brief (a document 3 in. thick) predicts that the industrial wealth of Alberta will triple by 1980—and further declares that the value of manufacturing facilities in Alberta will rise by \$1 billion (to \$1.5 billion) within two decades.

Expected to bear a tremendous weight of the increase: development of petrochemical-producing facilities "which should set an all-time expansion rate increase for the North American continent."



JUDGE DEVITT, UNIONIST CONNELLY: A chance to fix labels on . . .

Labor Law Rights, Wrongs

In three current cases of import to the industry, state and federal courts are getting a chance to straighten and clarify those vague, wavy boundary lines between what's o.k. and what's illegal in labor relations.

By coincidence, the United Mine Workers (Ind.)—whose District 50 claims to represent 100,000 chemical workers—figures in all three cases: in Kentucky as plaintiff, in Utah as defendant, and in Minnesota as an innocent bystander.

New Trial Asked: In Minneapolis, Archer-Daniels-Midland Co. and four officials of the AFL Teamsters are asking for a new trial following last fortnight's jury verdict that the union leaders' sharing of a \$5,000 "strike expense" payment from ADM constituted a violation of the Taft-Hartley Act.

That act forbids a gift of anything of value from an employer to a representative of his employees. The government's prosecutors called up 40 witnesses to show that the Teamster officials received about \$1,000 each from an intermediary, and that the party who advanced that money later was reimbursed by ADM. This occurred back in 1953 while District 50—representing most of the production workers at ADM's Minneapolis works—was on strike. The government alleged that the Teamster officers were given the money so they would

try to oust District 50 as the employees' bargaining agent and settle the strike*.

The transaction was illegal, the government maintained, because the Teamster officials were representatives of four ADM truck drivers who were members of the Teamster union. The company and the union officials contended that Judge Edward Devitt misinstructed the jurors and that the jury erred in its verdict, because either (1) there was no criminal act, or (2) there was no criminal intent. Defense attorneys argued:

- The T-H prohibition applies only to the union that represents employees, not to that union's individual officers.
- There was no "guilty knowledge" on the part of either party that the Teamsters represented those four truck drivers.

Potash Producer Sues: In Salt Lake City, Bonneville Ltd. is suing District 50 for \$350,000 for damages caused by an allegedly illegal strike; and also is asking an injunction against the union. The other union involved: United Bonneville Workers Assn., six of whose members were granted a court order to pass through District 50 picket lines.

*Billed as key man in the deal: Gerald Connelly, who last September was fired by Teamster President Dave Beck as business agent of the Minneapolis local, then a few weeks later was rehired as organizer. District 50 stymied the attempted raid by the Teamsters and is still bargaining agent at the ADM plant.

Bonneville advances these grounds for calling the strike illegal: conflict with the state's new "right-to-work" law; failure of UMW to file a non-Communist affidavit with the National Labor Relations Board; failure of the union to file a strike notice with the Federal Mediation & Conciliation Service; and the alleged District 50 action inducing UBWA to break its no-strike agreement.

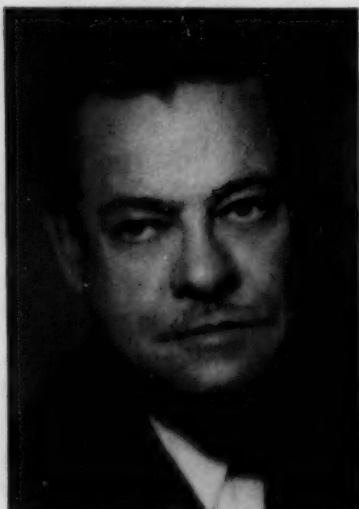
In Frankfort, Ky., a state circuit court has given 145 UMW members at least a tentative victory over the State Unemployment Commission and the two coal companies they worked for. Those companies—stating that they couldn't carry out their UMW contracts and stay in business—had served notice that the contracts were terminated, and then offered to continue operations paying the same wage rates but only for time actually worked. The miners refused to work without portal-to-portal, lunch and vacation pay; and the commission refused to pay them unemployment benefits because Kentucky law prohibits making such payments to persons in labor disputes. The court's reversal of that ruling—unless it's countermanded by the state supreme court or by enactment of new laws—will set precedent for all employers in the state.

Parleys on Pollution

So far, the regional workshops sponsored by the Manufacturing Chemists' Assn. on water pollution abatement are doubling in number each year: one held in 1954 (Boston), two in '55 (Albany and Chicago), and—according to word from MCA headquarters this week—four tentatively planned for 1956 (starting with either New Jersey or St. Louis).

That these regional workshops—aimed at helping to solve local pollution problems faced by individual plants—have been well received is reflected in the statement by MCA Secretary M. F. Crass, Jr., at the 20th annual meeting of the Industrial Hygiene Foundation: "We feel that the workshop method, with its informal and practical approach, has considerable merit; we propose to continue it."

Following this satisfactory experience with workshops on water pollution, MCA's Air Pollution Abatement Committee is considering launching a similar program next year.



STRACKBEIN: A leading spokesman for higher tariffs takes a . . .

Shift in Tack

Import quotas rather than tariffs will be the focal point of next year's Congressional battle over foreign trade policy.

Already, a big drive for imposing quotas on cotton textile imports is shaping up—and if the drive succeeds, Congress' unwritten rule against legislating import barriers for specific products will have been broken, and quotas on other items—including possibly some chemicals—will be almost sure to follow.

A wide range of industries that feel themselves threatened by foreign competition are already hurrying to get on the quota bandwagon. Last week, for example, O. R. Strackbein, a leading spokesman for several score high-tariff-minded industries, called for a broad conference in Washington (on Dec. 14) of representatives of industry, labor and agriculture to draft quota proposals for submission to Congress next year. (A number of leading chemical firms are expected to be represented at this conference.)

But the cotton quota is sure to be the bellwether for other quotas to follow. Battle at first will center on a bill—S 2-702—submitted by Sen. James O. Eastland (D., Miss.).

Sure Opposition: Although Senator Eastman has rounded up 63 cosponsors of the bill, there is almost sure to be Administration opposition.

Top Eisenhower supporters feel

that it would seriously impair the Republicans already-battered liberal foreign trade policy, and in particular would strike a hard blow at the struggling Japanese economy.

The "dumping" feature of the bill, it is felt, would antagonize a large number of countries around the world whose support Washington is trying to woo—notably Egypt, Brazil, Canada, Australia and New Zealand.

Administration strategy in fighting the Eastland bill will be to try to split the cotton farmers from the textile makers by pointing out that Japan is one of the leading markets for U.S. agricultural products in general, and imports more raw cotton than it exports cotton textiles to the U.S. And in this line of reasoning they feel that they're on solid ground because, although imports from Japan have been multiplied threefold this year, they are still less than 1% of domestic U.S. production.

COMPANIES

A number of major manufacturing companies are reported readying bids this week for construction and operation of the Atomic Energy Commission's proposed new uranium salts refinery. Probable site: Salt Lake City; estimated cost: \$6-8 million.

The proposal is widely regarded as an excellent chance for companies new engaged in uranium mining and concentrating to extend operations into salt refining. The salts are later converted into uranium hexafluoride.

Merck & Co. will redeem (on Feb. 2, 1956) the entire issue (143,664 shares outstanding) of its \$4.25 second preferred stock.

Chief reason for the move, executives state, is to simplify the company's financial structure, and allow greater flexibility in financing future growth and expansion.



Up from the Sea

DREDGING WORK is going forward this week on Hooker Chemical Ltd.'s \$11-million chlorine-caustic soda plant site at North Vancouver, B.C.

Complete dredging activities are expected to consume upward of five months' time, will involve removal of some 1 million yds. of

seabottom and tidewater area. Thereafter, Hooker officials estimate, it will take 10-12 months to handle construction; the plant (which will supply chlorine and caustic to West Canadian oil refineries, pulp, plywood, adhesive and chemical makers) should be on-stream early in 1957.

Washington Angles »

» **Next head of BDSA's Chemical and Rubber Division** will be George Fowles, Plastic Materials sales manager for B. F. Goodrich Chemical. Fowles will replace Theodore Hodgins, of Reichhold Chemicals Inc., in the job next Jan. 3.

Fowles is an electrical engineer, once employed by Anaconda Copper. He first got into chemicals when he joined Goodrich as Wire and Cable sales manager.

» **The often-nebulous but stringent rules** for WOC's (see page 23) will be defended by Assistant Attorney General Stanley Barnes on Dec. 9. He is now scheduled to testify before Rep. Emanuel Celler, a prime critic of "businessmen in government."

» **Extension of federal water pollution laws** without further public hearings now seems likely. Barring a last-minute change in plans, a House Public Works subcommittee will consider only written

comments on S. 890—a bill that has already passed the Senate.

Current federal pollution law is due to expire on June 30, 1956.

» **Exempt sales of commercial chemicals** from renegotiation—that's what Congressional tax experts are now being asked by the Manufacturing Chemists' Assn. Capitol Hill groups plan hearings on possible extension of the Renegotiation Act—which expires next June. MCA's position: if extended, the law should specifically exempt commercial chemical sales contracts from later profit recapture.

» **An Administration report on water resources** is almost ready for public release. Republicans plan a big publicity splash when it comes out just after the holidays. The report, drawn up by the Interior Dept., the Agriculture Dept. and the Army Corps of Engineers, calls for the biggest East Coast flood control program in history, on top of already-set reclamation water projects in other areas.

Stockholders of Pacific Refining Co. have authorized liquidation of the company and its subsequent sale to Standard Oil (California) and Honolulu Gas Co.

Honolulu Gas Co. fathered Pacific Refiners in 1949—to process crude oil and market by-products including asphalt, tars, benzene, xylene and toluene.

Standard's decision (consummated early last month) to build its own \$30-million refinery in Honolulu made Pacific Refiners' future "doubtful" however, was the chief factor in bringing about its demise.

» **Trubek Laboratories** (East Rutherford, N.J.) has acquired Truland Chemical Co. of Union, N.J. The operations of Truland (which include custom reclamation or purchase of organic chemical by-products) will be moved to East Rutherford, but no change in Truland personnel is contemplated.

» **Reichhold Chemicals (Canada) Ltd.** has acquired a 112-acre site at Millhaven, Ont., near Canadian industries' recently completed \$20-million Terylene plant, as base for its second multimillion-dollar expansion program.

Production plans will not be com-

pleted until early next year, but company officials assert that there will probably be an exchange of base chemicals with CIL's Terylene-production operations.

» **Stockholders** of Hooker Electrochemical Co. have approved a proposal calling for consolidation of Niagara Alkali Co. into Hooker. The consolidation proposal had already been approved by Niagara Alkali stockholders.

» **Olin Mathieson Chemical Corp.** has purchased the Shreveport, La., creosoting plant of American Creosoting Co.

The purchase, Olin Mathieson officials say, will enable the company's Forest Products Division to more than double its current output of creosoting materials.

» **The merger** of Consolidated Chemical Industries into Stauffer Chemical Co. has been approved by stockholders of both firms. Total assets of Stauffer (the surviving company): \$125 million.

» **Three company incorporations** in Dover, Del.:

• Crown Plastics, Inc., listing capi-

tal stock of 500 shares, no par value.

• Colgate-Palmolive (West Indies) Inc., listing authorized capital stock of \$50,000.

• Rich Pharmaceutical Corp., listing authorized capital stock of \$1.25 million.

EXPANSION. . . .

» **Tall Oil:** West Virginia Pulp & Paper Co.'s new tall oil refinery at Charleston, S. C., will come onstream sometime late this month, company officials now say.

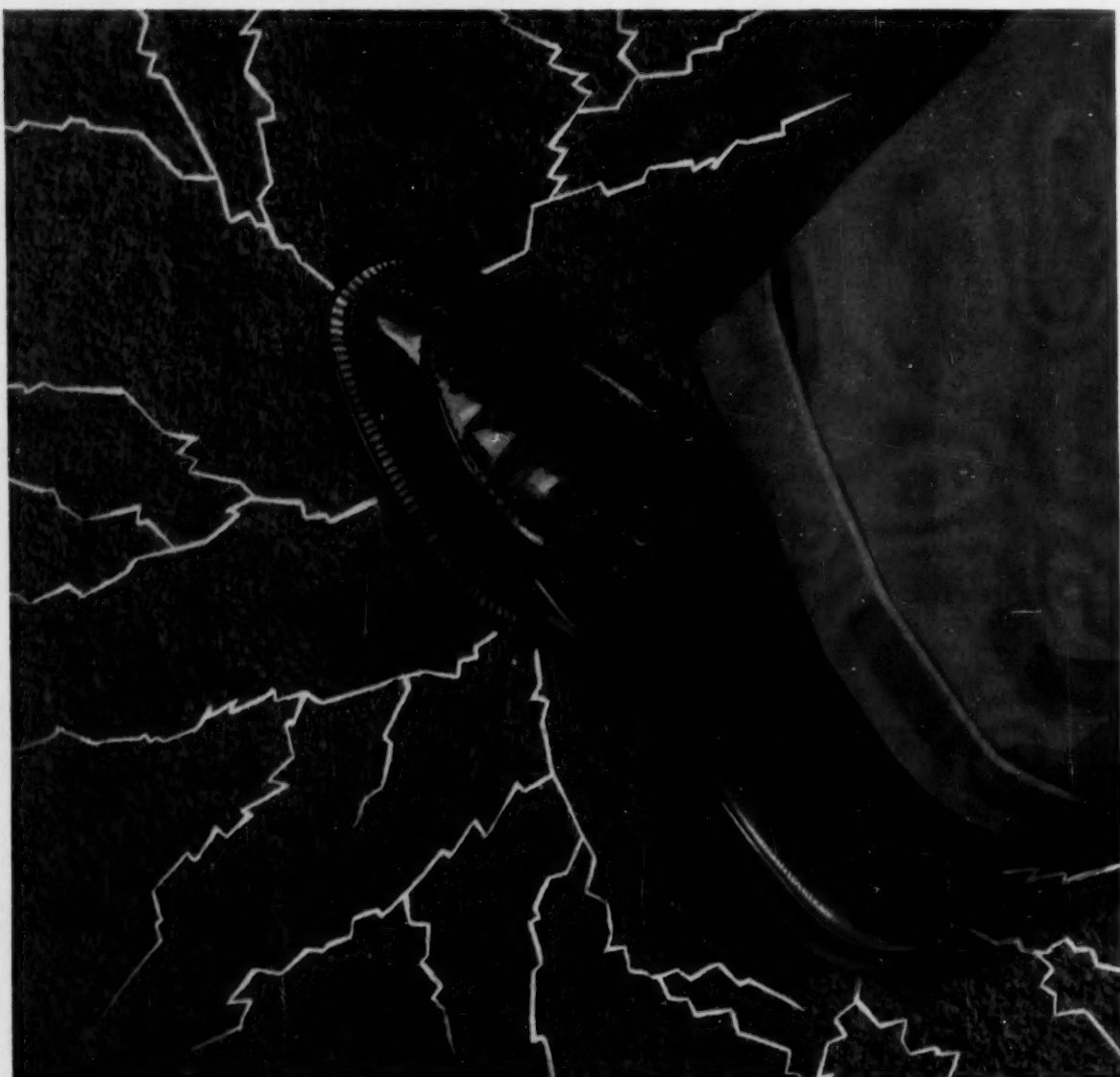
Output will include tall oil, fatty acids, tall oil rosin, and tall oil pitch.

» **Cement:** Plans to build a \$10-million cement plant in Kingston, N.Y., have been completed by the Strelene Corp.

Estimated initial capacity: 6,000 bbls./day of cement; expected completion date fall: 1956.

» **Industrial Chemicals:** Puritan Chemical Co. (Atlanta, Ga.) will build a new half-million-dollar industrial and sanitary chemical plant outside Atlanta.

First segment of the new plant is expected to be ready for operation by fall, 1956.



How to put static electricity on the run

A new spray-on material for rugs eliminates those unpleasant shocks you get after walking across them and touching a doorknob. The product contains a Du Pont surface active agent which forms a conductive coating on the rug's surface. Static electricity, generated as the foot passes over the rug, is drained off over a large area.

Knocking the shock out of rugs is the latest application of this surface active agent. The textile industry has used it and related Du Pont compounds for some time to eliminate static in manufacturing proc-

esses. There may be new and completely different uses for this surface active agent . . . *your* uses.

There are more than 50 Du Pont surface active agents to choose from, including anionic, cationic, nonionic and amphoteric materials. Rigidly controlled as to quality and uniformity, they are particularly useful as foam builders, emulsifiers and wetting agents. Some are stable in acids and are being used in the oil and electroplating industries. Others are successful as mold lubricants for plastics. Perhaps one of these specialized products

could be the answer to your problem.

WRITE US ON YOUR COMPANY LETTERHEAD and give us the details of the application you have in mind. Let us suggest a surface active agent that may do the job. Address: E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Wilmington 98, Delaware.



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

DU PONT **SURFACE ACTIVE** AGENTS



DRAWINGS BY GORDON DRAPER

'WHETHER OR NOT' is the chronic cry of all industry men facing a tour of government duty in Washington.

Is the Job Worth It?

In the face of recent developments involving industry representatives in Washington, there's a real question in the minds of many chemical executives as to the advisability of joining the "Eisenhower team."

The businessman in government may turn out to be a critical issue—a veritable tool—in the '56 presidential political campaign.

With this in view, a close look at the pros and cons of accepting a government post is strongly advised for any executive considering a "tour of duty" in Washington.

The first thing that must be considered is, What's it worth in the long run? A man can be sure, in any tightly managed company, that his old job would have to be filled before he could return to it.

Judging from the recent past, however, this is not too great a worry. While there were some examples during the Korean emergency of men who were "kissed off" by being sent to Washington, the half-dozen men who were sent by chemical companies to work in BDSA in its 2½ years of existence, without exception, have better jobs now than they formerly had.

John Field, for example, who went to Washington to be an assistant BDSA administrator, is now a vice-

president of Carbide and Carbon Chemicals Co.; Harold Smith, after his stint as Chemical Division director, was named assistant to Dow Chemical Co.'s executive vice-president; and Carl Morrison, Smith's successor at BDSA, is now head of Esso Standard Oil's Cuban refining operations.

Another question sure to come up concerns past activities. An executive who, 20 years ago, may have been interested in a wide range of activities puts himself in a position to be turned down after a "top secret" security investigation as a "college pink." Too, the new requirement for publication of details on stock ownership and proprietary interests can offer a host of problems. Some executive might find it "unhandy" to have company colleagues know he owned stock in a competitor. Another might be reluctant to reveal a significant ownership in, say, a subsidiary of his own company.

Who Pays What? Expense accounts are also a vital consideration to the industrialist about to take a Washington job.

The only compensation any man can expect to get (for heading a BDSA division) is \$15 expenses for each day at work. The "without compensation" from which the "WOC"

initials are derived actually means "without salary." Official trips a division director takes may also be paid for out of government funds.

Some companies have felt that giving their man an expense account might risk future unfavorable publicity. Other firms feel that the training such a post gives a man is valuable enough to the company to overbalance such a possible risk. Still others have used this middle-ground approach: they pay a man's moving expenses, and the cost of any trips to and from the company offices. They establish a drawing account at some Washington restaurant, to help their men make contacts.

There is a definite consciousness of possible conflict-of-interest questions that might be raised here, however. Few men can risk paying for a lunch where it could be considered of direct benefit to one's company. The obvious examples here are those of former Public Buildings Commissioner Peter Strobel, who admitted to congressmen that he saw nothing wrong with conducting private business on his lunch hour, and of National Starch's John Clay, who faced the accusation of trying to influence career civil servants over the luncheon table to issue his company a fast tax write-off on contemplated expansion plans.

Another problem that must be faced is more specific: What must a man do

Which of these resources does your chemical processing require?

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- ☐ Lead
- ☐ Soybeans
- ☐ Coal
- ☐ Electric power
- ☐ Low cost transportation



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B & I

in some particular transaction affecting his own company? Generally, the answer is about what Dow's Harold Smith made of it.

Smith was director at a time when the Office of Defense Mobilization requested an opinion as to whether the government should sponsor an increase in the ammonia tax write-off expansion goal. He took an active part in formulating BDSA findings (that since present producers would be able to meet the forecast increased demands by reducing percentage yields, no new expansion needed government encouragement). But when BDSA was overruled by ODM, he disqualified himself from acting on specific applications. One of the companies asking a write-off was Midland Ammonia, in which Dow has an interest.

Industry Data: A further point to be considered in regard to taking a Washington job: agencies such as BDSA have a mass of capacity and production which has been reported by individual companies on a confidential basis; there has been the fear in some minds that industry men could thus find out details of their competitors' plants.

"Anyone who thinks we'd send back such information doesn't really know industry men," one former division head retorts. "If a man who's worth his salt comes to the government, he'll already know what his competitors' plant capacity and production are—even if he had to count freight cars."

For a man who may come to Washington as a WOC, perhaps the most important question is that of possible gains that might accrue as assets to his future career.

The simplest asset is that Washington service broadens a man's outlook. He gets an opportunity to make contacts with government commodity and technical specialists, with other industry men, with Congress, and with top-level government officials. The Commerce Dept. for example, sponsors evening meetings for its WOC's, at which top administration officials explain their jobs and policies.

Such contacts are certainly not to be depreciated.

But there is the other side: with an election year coming up, there will be increasing pressure by the Democrats to make businessmen-in-government a prime campaign issue, making WOC's a target for attack—merited or not.



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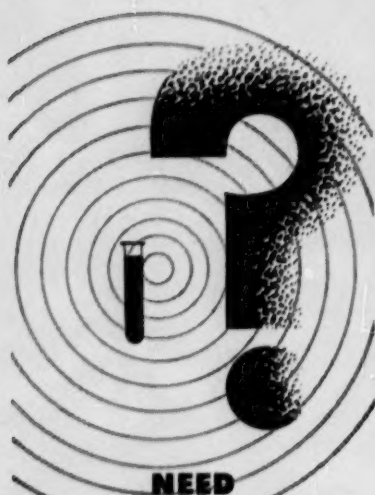
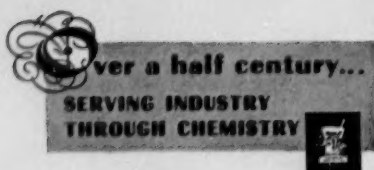
Every year uses like this for reinforced plastic materials are growing. They are already widely applied to sports car bodies, boats, corrugated building panels, modern furniture, air conditioning ducts.

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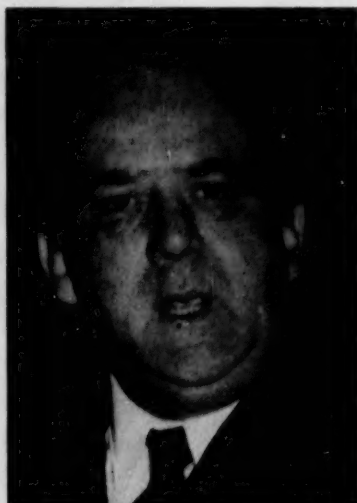


FOTO BRANDT, HAMBURG

GERMANY'S GEFELLER: In new chemical labor pacts, a small step . . .

Toward U. S. Levels

They're pushing for U.S.-level wages and hours in West German chemical plants, but the West German labor union people still have a long way to go. And it's doubtful if they're really gaining on U.S. chemical workers.

This month, negotiations are being completed for a new set of state-by-state labor contracts in the West German chemical industry. It's expected that by Jan. 1 new pacts will be in effect providing 7-10% wage rises for all of the industry's 400,000 workers in about 2,000 plants; and at least one company—Farbwerke Hoechst A.G.—is experimenting with a shorter work week.

This move by Hoechst is an almost radical departure from long-settled industrial tradition in Germany. For many years, the standard work week in German factories has been 48 hours, and this year chemical workers there have been putting in an average of 50.1 hours/week. Now—a bit dubiously—Hoechst is giving a 45-hour work week a trial run in its main plant and at its Griesheim unit.

Wage Issue Seen: Neither pressure from the labor union nor a cutback in production was a factor in Hoechst's decision to test the 45-hour week, according to company management. A Hoechst spokesman told *CW* that management views the shorter work week as a "social benefit."

Numerous details are still up in

the air, including shift assignments and wages. Tentatively, workers are getting the same take-home pay for 45 hours as they did for 48 hours—in effect, an increase in hourly wage rates. But Hoechst says it plans to "retain" 2% of pay under any new wage agreements to be negotiated. How the West German chemical union—Industriegewerkschaft Chemie-Papier-Keramik, headed by 49-year-old Wilhelm Gefeller—will react to this proposition when the chips are down remains to be seen.

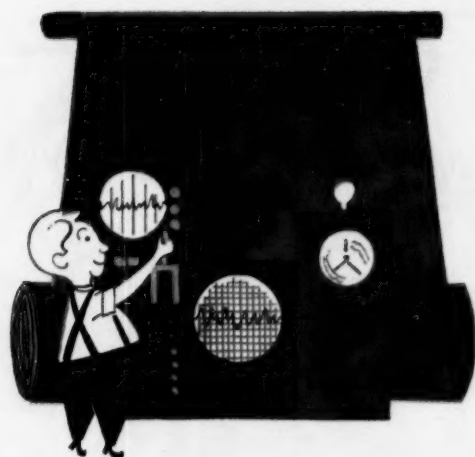
Throughout Germany, management men are watching this Hoechst experiment to see whether it'll prove a practical measure that can be continued through 1956 and adopted in other companies and industries. Some German industrialists are not convinced that the average German production worker wants a shorter work week.

Still Lagging: The new wage agreements being concluded this month will put into effect pay rates that are more than 30% higher than the country's chemical hourly earnings in 1951. Over these past four years, hourly earnings of chemical workers in the U.S. have mounted by about 21%.

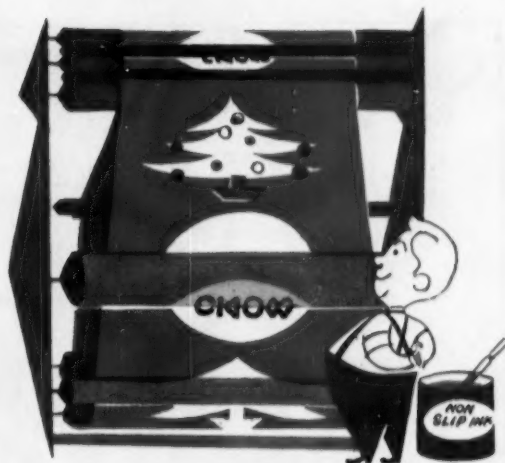
But in actual money, the West German chemical worker seems to be falling behind rather than catching up. His hourly pay is up by an average of about 12¢ since mid-1951, while average hourly earnings for U.S. chemical workers have climbed by 37¢ over the same period.

And in absolute terms, it's easy to see that West German chemical wages are still lagging far behind those paid by U.S. chemical concerns. As of July this year, average hourly earnings for U.S. chemical workers stood at \$2.03; average pay for their West German counterparts—including the new 7% wage increase plus standard fringe benefits—comes to little more than 50¢/hour.

Competitive effects of the new wage agreements will vary from company to company; but Germany's chemical industry has increased its productivity considerably in the past few years, and management sources predict that the higher wages can be digested without raising prices on products. Thus for U.S. chemical firms facing competition from West German rivals, the new pay scales in that country will make little or no difference.



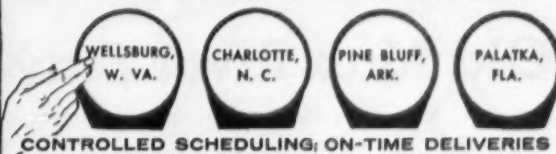
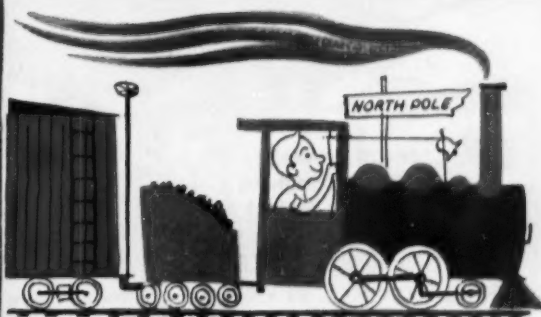
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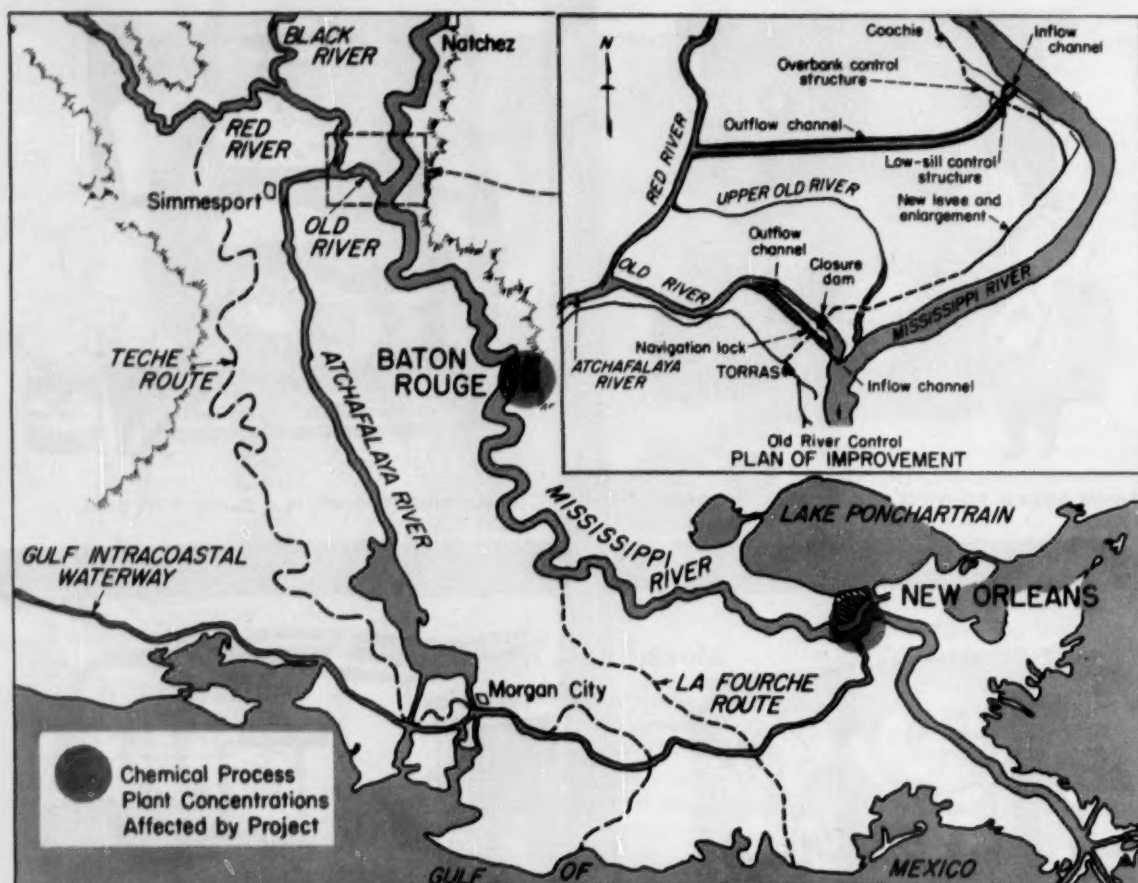
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CHANNEL CONTROL PLAN: On lower Mississippi, a \$50-million scheme that will help chemical firms by making . . .

Old Man River Stay Put

Never a believer in exclusive outlets, the mighty Mississippi River has been starting to stage a shift that would leave high and dry many water-based chemical process plants at Baton Rouge and New Orleans.

To keep this flighty river from running out on its obligations, the Army's Corps of Engineers has launched a 10-year river control project.

It takes ingenuity to get a foot-loose grandpa to stay home when the wanderlust strikes him; and in the same way, it's going to take ingenuity—plus about 10 years of heavy construction work and nearly \$50 million—to get the meandering old Mississippi River to drop its yen for a different route to the sea.

The course to be followed by Old Man River makes a lot of difference to numerous chemical process companies that have invested millions of dollars in plants at Baton Rouge, New

Orleans, and vicinity. Those companies have been relying on the giant stream for inexpensive shipping and as a cheap and handy source of water for cooling and processing. If the river is allowed to have its own way in this matter, it'll mean that those plants will have lost their "well" and waterway—and it could happen in little more than 10 years.

Here's what's been going on in the Delta region: Up to about 900 A. D., the Mississippi emptied into the Gulf of Mexico via what's now known as

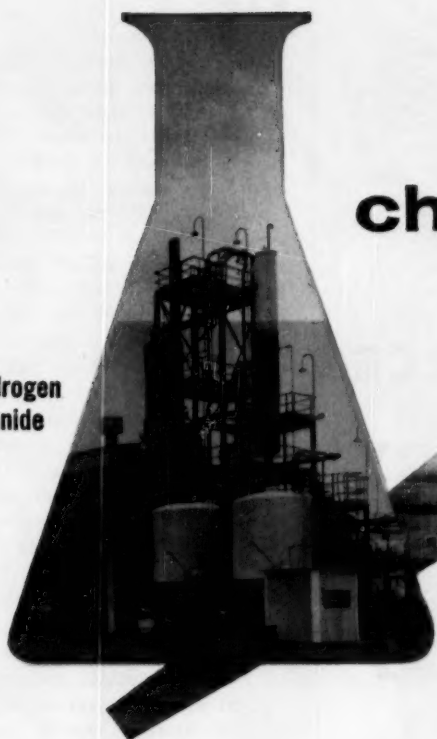
Bayou Teche (see map, above). Next it switched to the Bayou La Fourche route for about three centuries, then took its present course in about 1200 A. D. Now this outlet has been made longer and flatter because of 700 years of silting up, and the river has been looking for a shorter and steeper outflow.

75-year Process: It used to be that water from the Red and Black Rivers flowed into the Mississippi through the Old River; but starting back in about 1880, some of the Mississippi's current has been pushing westward through the Old River and then southward into the Gulf by way of the Atchafalaya River. By the Old River route, it's only a 140-mile slope to the sea, whereas the distance via the main stream past Baton Rouge and New Orleans is a little more than 300 miles.

Thus the downward gradient of the Atchafalaya route is more than twice as steep as that of the New Orleans course; and so for the past 75 years,

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B & I

an increasing proportion of Mississippi water has been going into the Atchafalaya. This short cut to the sea took 17.2% of the Mississippi's current in 1910, 30.3% in 1950. If this shift were allowed to continue unchecked, it's estimated that the diversion would reach 40% by 1960 and after that would mount much more rapidly toward 100%—which would leave high and dry the water-based chemical communities downstream.

Also involved: Many millions of dollars worth of flood control works along the lower Mississippi, including more than 450 miles of levees along the main stem. If the "Father of Waters" changes its course, those present structures will be left stranded and useless, and a new set of flood control works will have to be built along the new course.

Enforced Behavior: To force the Mississippi to carry out its commitments to the industries, cities and people that have been dependent upon it, the U.S. Army's Corps of Engineers has started a 10-year construction program aimed at making the river behave.

First task—starting late this year—involves a \$9.9-million contract to build a low-sill control dam just off the main stem below Coochie and to dredge an outflow channel westward to the bed of the Red River. This will regulate outflow from the Mississippi into the Red and Atchafalaya Rivers at all levels, and will be used to aid navigation by maintaining an even stage in both streams.

Next projected unit will be the over-bank control structure just north of the low-sill dam. It will be used to skim the top off flood crests when they surge downstream, allowing excess water to spill into the Atchafalaya basin flood plains. Later, the Corps of Engineers will ask for bids on new and enlarged levees, a closure dam to seal off the Old River, and a navigation lock to permit barge traffic to move smoothly from one river system to another.

Though some Delta people are doubtful that the huge river can be kept in place by mere man, the Army's engineers are confident that their plan will stop—for all time—uncontrolled outflow from the Mississippi. If they're right, it'll be a big boon for Louisiana's two chief cities and many industrial and pipeline companies.

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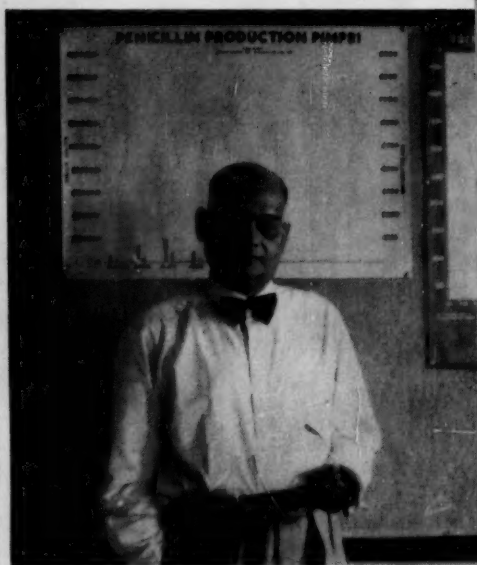


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Asia's first penicillin plant goes into full operation late this month at Pimpri, near Poona in India.

Built with the aid of the U. N. Technical Assistance Administration, UNICEF and WHO, the plant is operated by Hindustan Antibiotics, Ltd., cost \$4 million to construct, has a capacity of 700 billion units/month of penicillin.

Thirteen Indian nationals (*see briefing session left, below*) were trained in the U.S., at the expense of WHO, to handle basic production chores; the company's deputy director, G. S. Sankaran, studied Cutter Laboratories' Berkeley, Calif., units before taking charge of operations.

Pride of company executives, however, are recent research developments.

Hindustan Antibiotics' researchers, says Managing Director J. R. Dogra, have discovered how to use Indian groundnut cake and cane sugar as substitutes for U.S. imported raw materials. Encouraged by this success—and the promise of an almost-insatiable Asian market for low-price antibiotics—Hindustan officials say it won't be long before streptomycin is also included in the company's production line, as well as other antibiotics.



TECHNICIANS: Briefed by Deputy Director G. S. Sankaran, they guide native workers in all stages of operations.

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DRAWING BY GORDON DRAPER

Matchmaker for a Price

There just aren't enough obvious good merger prospects left in the chemical industries today. That's the cry of executives, exhausted by the strain of beating the bushes for eligible companies to broaden their own firms' sphere of operations.

As a result, there's a big (and increasing) demand for the aid of "experts" outside the company who will (1) uncover willing, profit-bound merger candidates, and (2) pilot the final welding through—to the signed, sealed and delivered stage.

Essentially, these experts are merger brokers, whose experience in the highly complex field qualifies them as a kind of "third man" in bringing about company amalgamations.

Balancing the Scales: Discussing the role of today's merger broker, one such broker, a Chicagoan*, says, "The broker's approach to a merger is that of the analytical chemist balancing a pair of delicate scales." Reason: such buy-sell deals, more often than not, involve scores of tangles. To mention but a few:

- A worthy seller (or buyer, as the case may be) must be located.
- Agreement between company heads on price and terms of merger must be reached.
- Stockholder approval must be courted.
- Economically satisfactory tax settlements must be found.

* Arthur H. Richland.

When They're Needed: It shouldn't be inferred that a merger broker is always needed whenever a company merger is in the offing. Sometimes (even the brokers themselves admit), a third party is superfluous.

For example, some chemical companies already have specific firms in mind when they seek merger (either by purchase or by self-sale). In that case, brokers merely complicate proceedings.

Here direct negotiations between executives on both sides of the merger table will usually carry the deal off (with some booster aid from company legal staffs, banks or accountants).

On the other hand, when companies are groping in the dark for merger principals or a means to diversify or invest piled-up funds in a hurry, an assist from a broker usually is the ideal answer to most problems.

Hypothetical Merger: Take a hypothetical chemical company seeking to merge with another smaller chemical firm in today's tightening merger market. Where would a broker begin?

First, he'd probably indoctrinate himself in the future "parent" firm's background, markets, products, distribution setup, finances, and personnel organization.

Next, most likely, he'd attempt to single out a complementary smaller firm to fit this framework. From past experience, such pinpointing of pos-

sible candidates can usually be accomplished (although the scanning and screening process might take even an expert broker several months' time).

Assuming he's successful in his hunt for a mergible firm, what happens if the target company is reluctant to sell? That's where a qualified broker can be especially useful.

Subtle Persuasion: As diplomatic envoy for the "parent," the broker will attempt to subtly persuade the smaller chemical firm's executives that merger will generate a number of advantages. Making negotiations tricky, however: the broker must accomplish this part of the operation in partial secrecy. For, if the identity of the prospective buyer leaks out, there could (in many cases) be an immediate cessation of discussions.

Sometimes, the briefcase is in the other hand, however, and the broker may be seeking to convince a larger firm of the advisability of merging with a smaller company.

In cases such as this, a broker is beset with even more annoying tangles. For, at all costs, he must avoid a "peddling" aura surrounding the seller's firm. Usually he'll skirt this difficulty by discreetly withholding his client's name, disguising its telltale features, geographic location, and production details until an active interest is evinced by the buyer.

Details Next: Assuming, however, the broker has succeeded in titillating the interest of both hypothetical buyer and seller, he must next plunge into merger details.

Often he decides to arrange a "summit" meeting of executives of both firms concerned. And, as liaison man, he'll seek answers at the bargaining table to questions like:

- Should the sale be cash, stock, or a combination of both?
- How can tax requirements be met without paying ruinous sums?
- How will young executive personnel of one company integrate with the older, more-experienced groups of the other?
- What changes in products, methods, distribution would be advisable, and how should these be effected?

Often, because both parties naturally think in terms of their own interests, merger parleys deadlock. That's simply because participants

NM
CH₃NO₂

NE
CH₃CH₂NO₂

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CH₃CH₂CH₂NO₂

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Molecular Weight	61.04	75.07	89.09	89.09
Boiling Point at 760mm, °C	101.2	114.0	131.6	120.3
Azeotrope with Water, bp, °C	83.6	87.1	91.2	88.4
NP in azeotrope, % by weight	77.1	73.6	64.5	73.1
Vapor Pressure at 20°C, mm	27.8	15.6	7.5	12.9
Evaporation Rate, by volume*	139.0	121.0	88.0	110.0
Freezing Point, °C	-29.0	-90.0	-108.0	-93.0
Specific Gravity at 20/20°C	1.139	1.052	1.003	0.992
Density of Vapors (air = 1.00)	2.11	2.58	3.06	3.06
Weight per U.S. Gallon at 68°F, lb	9.48	8.75	8.35	8.24
Coefficient of Expansion, per °F	0.00064	0.00062	0.00056	0.00058
Refractive Index, n _D at 20°C	1.3818	1.3916	1.4015	1.3941
Surface Tension at 20°C, dynes/cm	37.0	31.3	30.0	30.0
Heat of Vaporization at 30°C, cal/g	143.3	124.8	107.3	104.4
Heat Capacity at 25°C, cal/g	0.422 ^{30°C}	0.441	0.471	—
Dielectric Constant at 30°C	35.76	28.00	23.22	25.48
Ignition Temperature, °F	785.0	778.0	789.0	802.0
Flash Point, °F (Tag Open Cup)	112.0	106.0	120.0	103.0
pH 0.01M Aqueous Solution at 25°C	6.4	6.0	6.0	6.2
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NB (2-Nitro-1-butanol)	HAS (Hydroxylammonium Acid Sulfate)
NEPD (2-Nitro-2-ethyl-1, 3-propanediol)	HC (Hydroxylammonium Chloride)
NMPD (2-Nitro-2-methyl-1, 3-propanediol)	HS (Hydroxylammonium Sulfate)

SAMPLES ON REQUEST

Here are the Nitroparaaffins — NM(Nitromethane), NE(Nitroethane), 1-NP(1-Nitropropane) and 2-NP(2-Nitropropane). These four NP's have a potential range of usefulness unequalled by any other group of organic chemicals! CSC's new Nitroparaaffin plant at Sterlington, La. is now in full production. Additional facilities for increased volume of NP derivatives are nearing completion.

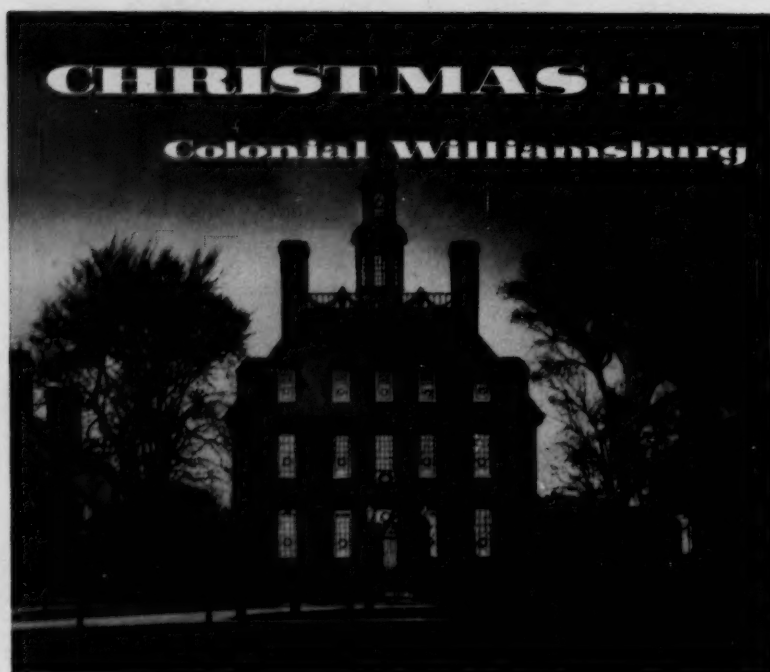
In many cases, they provide better and more economical methods of manufacturing well-known and widely used industrial chemicals. However, the majority of the reactions yield entirely new compounds. There are practically an unlimited number of products which can be prepared from the NP's. As solvents, they present an unusual combination of properties — they are medium-boiling, mild-odored and, most important of all, they have strong solvent power for a wide variety of substances, including many coating materials, waxes, resins, gums, dyes, fats and oils, and numerous organic chemicals. The CSC Nitroparaaffins are chemistry's newest stars. They give new direction to the production of old products and the development of new.



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B & I

can't understand one another's points of view.

Then, when a meeting of minds seems virtually impossible, it's the broker's business (because he sits on both sides of the table) to seek a way to break the deadlock without offending either principal.

There again, a broker's experience and diplomacy can make him well worth his salt to the company desirous of merger.

Broker Compensation: How is the broker compensated for these months—sometimes years—of exacting work? The answer is clear-cut. Only when and if a transaction is completed will he see a pay check.

Usually—if the deal goes through—his fee is 5% of the sale price, but it can be less if the merger is a big one. If, on the other hand, negotiations fall through, he may get nothing for his pains.

Obviously, then, brokers are likely to be fussy—especially in these days—about accepting assignments. But even if the outlook for a proposed merger of company interests seems virtually impossible, most experts can be persuaded to take a chance so long as the principals are realistic and the proposition is "do-able."

Some Tests: Admittedly, then, a broker's role in today's chemical merger picture is useful, sometimes indispensable. But what tests can companies use to evaluate a broker's qualifications before a company decides to hire him?

For a start, affirmative answers to questions like these are a good rule of thumb:

- Does the broker possess top-notch background in business, banking, accounting, taxes?
- Will his reputation stand close scrutiny?
- Is he frequently consulted by financial institutions?
- Can he evaluate business firms expertly?
- What are his past accomplishments in the merger field?

If he qualifies on all these points, chances are that a company considering merger can well profit from his services.

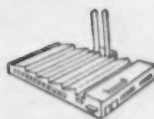
And, in the long run, the firm will probably find he'll save endless wear and tear on the part of its top company officials.

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Sue
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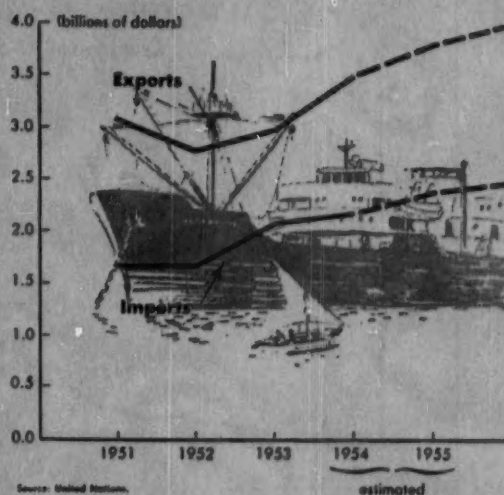
City _____ Zone _____ State _____



Charting Business

CHEMICAL WEEK
DECEMBER 10, 1955

Free World Trade in Chemicals Is on the Rise



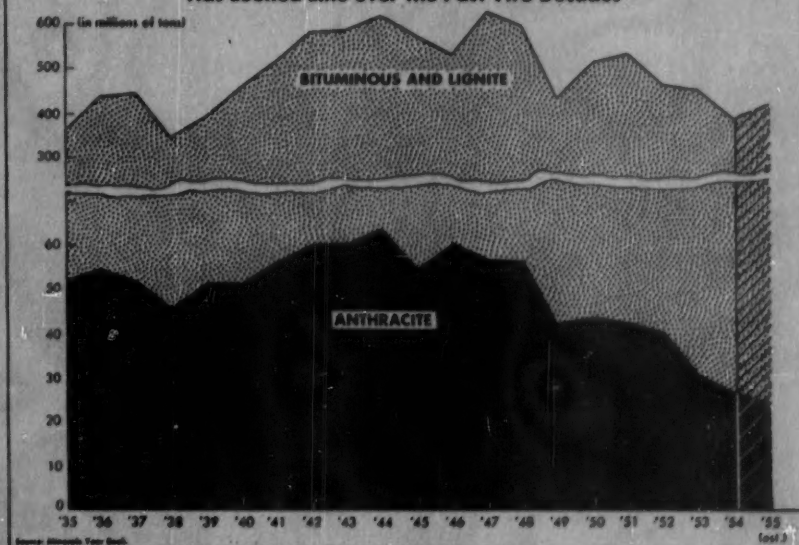
URGED on by the Eisenhower Administration's support of the General Agreement on Tariffs and Trade, free world trade in chemicals continues to move up.

Responsible in large part for the increase in exports (from 1953 to 1954): inorganic chemicals (which increased in export value from \$404.2 million to \$475.0 million), paints (\$186.7 million to \$222.1 million), organic chemicals (which soared from \$423.9 million to \$504.2 million).

Registering (from 1953 to 1954) the biggest increase in import trade: inorganic chemicals (up \$326.9 to \$380.5).

Will Coal Bound Back?

Here's What the Production Picture Has Looked Like over the Past Two Decades



A SHARP comeback for coal as a source of generator power is now a distinct probability, in the opinion of Joseph Pursglove, Jr., vice-president, Pittsburgh Consolidated Coal Co.

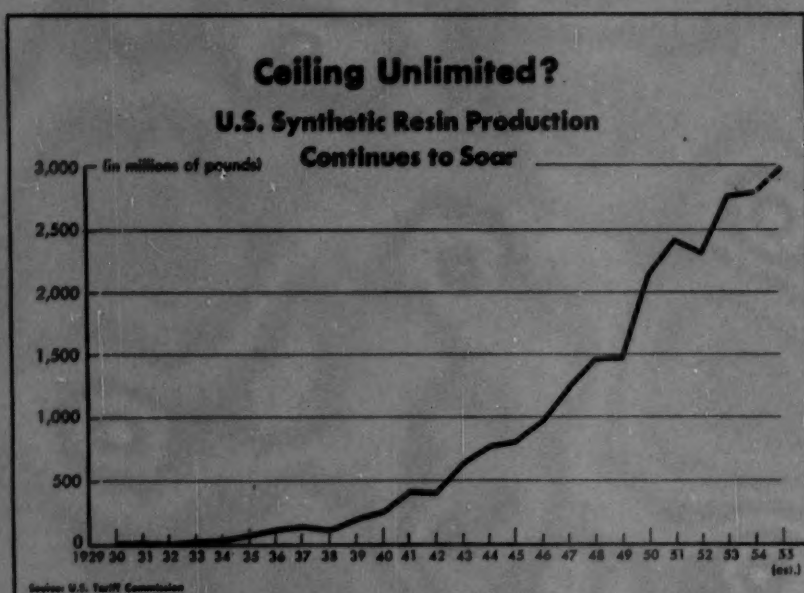
Chief reason: demand for oil and natural gas is expected to increase greatly

over the next several decades—and concomitant price increases are almost inevitable.

But coal will not increase materially in price, Pursglove maintains. Too, improvement in coal-fired electric plants has been tremendous since end of World War II.

Charting Business

(Continued)



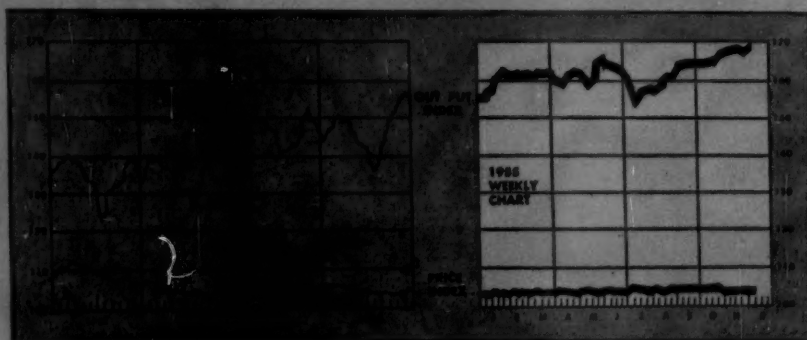
BY MOST conservative estimates, production of synthetic resins is due to burst past 3 billion lbs. in '55.

What's of even more long-term significance to chemical producers: plastics makers see no leveling off of production.

Vinyls are currently out in front in the

intra-industry tug of war (see *CW Report*, Nov. 19, p. 36). But the rise of polyethylene-producing capacity is one of the most spectacular gains in the entire chemical industry in the past several decades, will likely make polyethylene the first billion-pounds-a-year resin.

BUSINESS INDICATORS



WEEKLY

	Latest Week	Preceding Week	Year Ago
Chemical Week Output Index (1947-49=100)	171.5	170.0	156.1
Chemical Week Wholesale Price Index (1947=100)	104.7	104.7	104.2
Stock Price Index of 11 Chemical Companies (Standard & Poor's Corp.)	475.1	477.3	354.3

MONTHLY—Foreign Trade (Million Dollars)

	Latest Month	Exports		Latest Month	Imports	
		Preceding Month	Year Ago		Preceding Month	Year Ago
Chemicals, total	\$91.2	\$91.8	\$81.6	\$20.7	\$18.5	\$20.7
Coal-tar products	5.6	6.2	6.0	3.8	3.5	3.3
Industrial chemicals	11.7	14.2	12.0	7.1	7.0	5.5

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BUSINESS & INDUSTRY.

West German Pharmaceutical Output Record

(in million DM)

	1952	1954
Specialty products	491.3	670.7
Pharmaceutical chemicals	74.9	97.7
Alkaloids, glycosides, etc.	38.8	49.5
Vitamins, hormones	52.0	42.3
TOTAL PHARMACEUTICALS	863.1	1,077.3

FOREIGN.

Pharmaceuticals / West Germany:

Growth of the German pharmaceutical industry since the end of World War II has been one of the brightest achievements of that country's rapid renaissance.

Since 1950, late government statistics point out, chemical production in the Federal Republic has risen 73%—but pharmaceutical output has almost doubled in value.

Chief reason for the rise, industry executives admit, has been swift export increases. Whereas West German chemical exports have doubled since 1950, pharmaceutical exports have tripled—to \$63.3 million in 1954.

Synthetic Rubber/Great Britain: A scheme (costing \$25.2 million) designed to initiate production of synthetic rubber in Great Britain has been revealed by four tire-producing firms—headed by Dunlop Rubber Co.

To handle production details, a new company (International Synthetic Rubber Co.) has been set up, with authorized capital of \$11.2 million. Officials now predict that by 1958 the firm will have in operation a plant with an annual output of 50,000 tons of synthetic rubber.

Other firms involved in the deal: U.S.-owned subsidiaries of Goodyear and Firestone Tire & Rubber, and the British affiliate of French-owned Michelin, Ltd.

Paper/India: Three more paper mills will be built in India within the next 18 months.

First expected in operation: a \$2.1-million mill (to be built at Dinapur), with aid (and equipment) supplied by Japanese firms. Second due onstream:

a \$6.3-million plant in the South Bombay district of Karwar, with a daily output of 60 tons.

And now in the planning stages: a \$6-million plant at Mettupalayam, in the Nilgiri foothills (sponsored by the Madras government), designed to relieve the current shortage of good-quality writing and printing paper.

Plastics/Germany: The West German chemical industry is showing an increasing interest in the production of plastics this fall. Proof of the fact: the recent construction of two plastics plants—cooperatively, by companies formerly active in nonchemical branches of German industry:

- Kohle-Oel-Chemie GmbH (Gelsenkirchen), which will turn out polyethylene tubes and plates.

- Omniplast GmbH (Frankfurt), which will turn out polyvinyl chloride and polyethylene tubes.

Business/Japan: The wheels of industry are spinning at a high tempo in Japan this fall, according to late on-the-spot reports. The index for mining and manufacturing (for April-September) stood at 200.9 (1950 = 100).

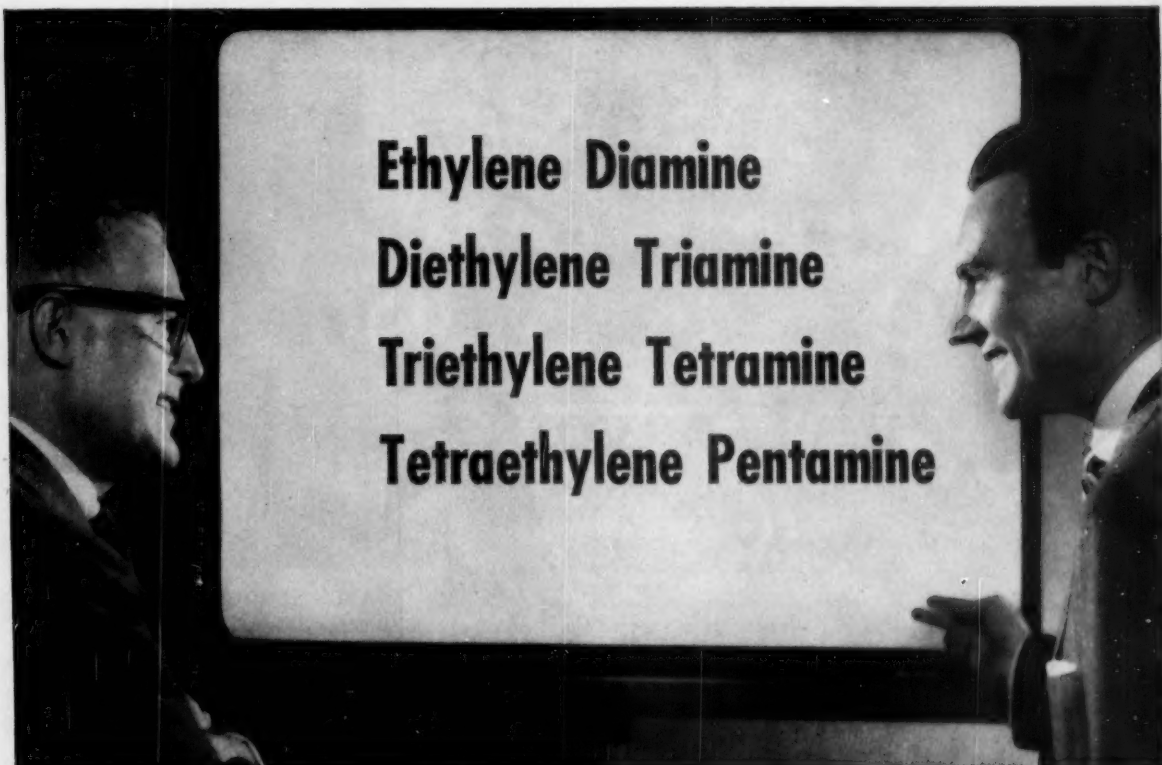
In the last two months in particular, a business pickup has been registered by textile, iron and steel, chemical, pulp and paper, and pharmaceutical makers.

The Ministry of International Trade and Industry maintains that much of the increase is due to brisk exports (encouraged by overseas economic prosperity), speculation on this year's bumper Japanese farm crops, and the absence of such obstacles to industrial production as strikes, material shortages, etc.

C W Report

Next Week ...

Government statistician Sol Swerdloff reports from Washington on what's ahead for employment in the chemical industry.



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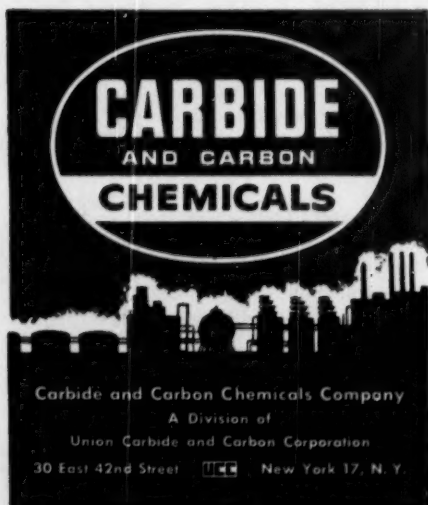
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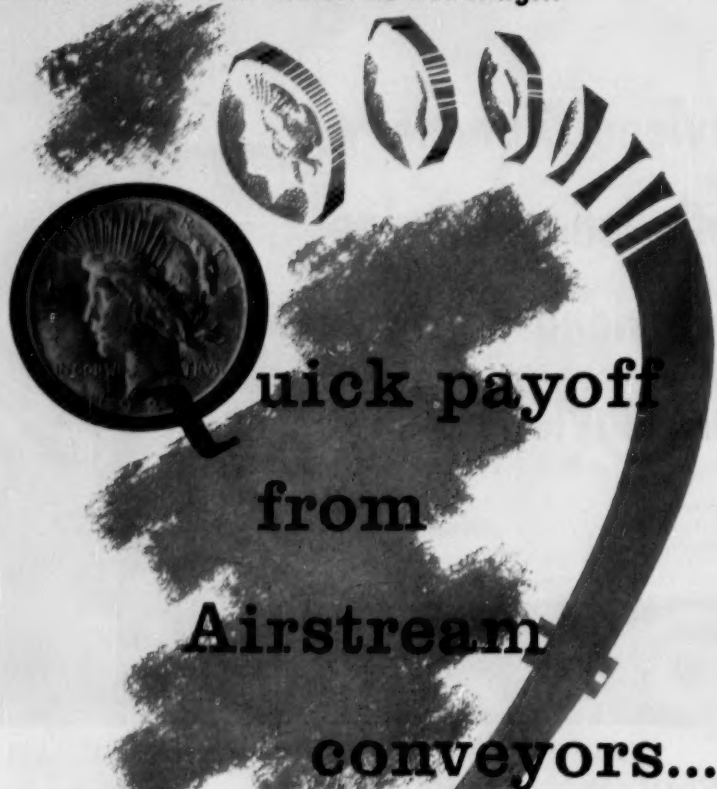
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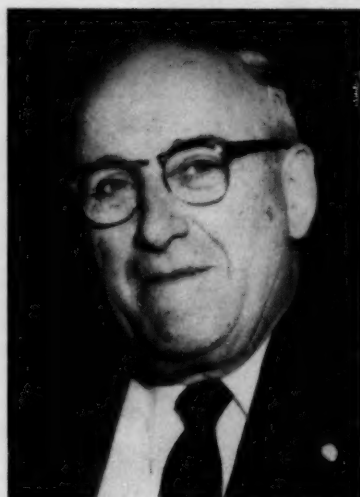
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B & I



AFL'S SCHOEMANN: In AFL-CIO merger, his union fears loss of rights.

LABOR

Kinks in Merger: Certain AFL unions are not bothering to hide their doubts and anxieties about the AFL-CIO merger being consummated in New York City this week. Peter Schoemann's AFL Plumbers union, for example, is worrying about possible loss of exclusive craft jurisdiction, up to now guaranteed by the AFL constitution. It doesn't like the idea that an industrial union—in a chemical plant, for example—might require the employer to use its members rather than craft-union members for new plant construction.

If the merger goes through as scheduled, some observers expect that numerous CIO organizers—trained in the sometimes bloody field of automobile unionism—will be assigned to a sweeping organizing drive in some categories: certainly chemical, very likely oil, also office workers and the newly industrialized sections of the South.

More Longer Contracts: Joining the move for longer labor contracts: Colgate-Palmolive, which has had to deal with a three-union coalition at three of its domestic plants (*CW*, April 9, p. 18). Ratified by employee groups at Jersey City, N.J., and Clarksville, Ind.: two-year pacts with similar provisions on wages, vacations and holidays. The Jersey City pay rise will be 4.37%; that at Clarksville, an average of 9¢/hour.

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Bleached Kraft	✓	
Creped Kraft	✓	
Wax Laminated Kraft	✓	
Asphalt Laminated Kraft	✓	
Wet-Strength Kraft	✓	
Water Repellent Kraft	✓	
Stak-LOK Super Rough Kraft	✓	
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Open Mouth Bags—sewn or pasted	✓	
Flat Sewn Valve Bags	✓	
Flat Sewn Open Mouth Bags	✓	
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B & I



PREMIER DUPLESSIS: In wake of price complaints, he warns pulpmakers.

LEGAL

No Profiteering: Province of Quebec Premier Maurice Duplessis is warning the pulp- and papermakers in that area to go easy on profits or his government might be forced to "interfere." The warning comes after a series of complaints from U.S. newspaper publishers about the prices they're having to pay on newsprint from Canada. Pulp and paper companies, Duplessis asserts, are lessees of publicly owned forests; and they must use their trust in a reasonable and just manner.

Soy Solvent Suits: Three civil suits asking a total of nearly \$1 million are being tried in U.S. District Court at Greenville, Miss. Three Hawaiian concerns filed the suits against Du Pont and Magnolia Soy Products Co., charging that a number of dairy cattle died after eating residual soy meal from which Magnolia had extracted the oil using Du Pont's trichloroethylene as solvent.

Quietly Withdrawn: The civil anti-trust and damage suits that were filed earlier this year by research chemist Carl Barnes against Imperial Chemical Industries and the subsidiary Arnold, Hoffman & Co. (*CW*, April 30, p. 13) have been quietly withdrawn. Barnes says the settlement was on a friendly basis but that there's an agreement not to disclose the terms. The researcher—now director of cen-

tral research for Minnesota Mining & Mfg. Co. (St. Paul)—says he still sees “an excellent commercial future” for polypyrrolidone resins (Pat. No. 2,638,463).

Court Too Costly: Also settled out of court last week: the \$1.5-million suit by Rand Pharmaceutical against Norwich Pharmacal. Norwich asserts that it had “a very adequate defense,” but that the \$3,500 settlement was preferable to the high costs of litigation.

Innocence Proved: Eight process companies have been excused from the government’s suit for costs of government-owned corn that allegedly had been illegally bought and sold by 35 concerns (*CW*, Sept. 17, p. 22). Charges were dismissed against these eight firms under a provision of law that says a company is not to be held responsible for conversion if it can show that it wasn’t aware of the commodity’s federal ownership. The companies cleared: J. J. Badnoch Co., Cargill, Gerstenberg & Co., Norris Grain, Quaker Oats, Hercek & Cass, Hollander & Feuerhaken, and Kellogg Co.

KEY CHANGES. . .

Oliver M. Morgan, to director, chemical sales, and **Harold L. Rieg**, to director, dyestuff sales and branch operations, National Aniline Division, Allied Chemical & Dye (New York).

Forrest Branch, to director, administrative services, and **Willard P. Scott**, to vice-president, American Potash & Chemical Corp. (Los Angeles).

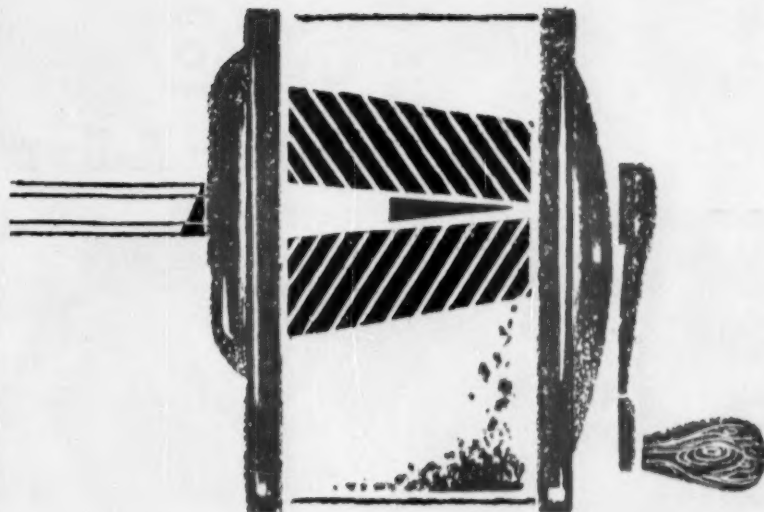
Robert T. Armstrong, to vice-president—technical director, Celanese Corp. (New York).

Lee H. Clark, to vice-president, Pennsalt Mfg. Co. (Philadelphia).

Franz Schneider, **Donald Stuart Russell**, **Richard H. Samuels**, **Richard F. Brown**, **James A. Lyles**, **W. W. Foshay**, to directors, Southern Nitrogen Co., Inc. (Savannah, Ga.).

George R. Milne, to president, National Carbide Co. Division, Air Reduction Co., Inc. (New York).

E. Allen Newcomb, to president and chief executive officer, Malstrom Chemical Corp. (Newark, N.J.).



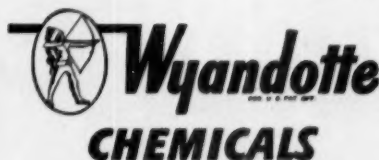
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HEADQUARTERS FOR ALKALIES

For Leather: A Run to the Finish



FILLING SHOES: 580 million pairs will use 80% of 1955's finished leather.



ACCESSORIES: Almost all kinds of resins find a leather finishing use.

Like the economy as a whole, chemicals win either way in many industry-vs-industry competitions. An example: chemistry's dual role in the battle between leather and plastics.

It's easy to see the chemical profit from plastic shoe soles, upholstery and luggage, but it's less obvious that chemical money is also brought in by the leather counterparts. The ancient (traced back to stone-age man) and big (\$750 million last year) leather processing industry was one of chemistry's earliest customers, has long been one of the best (ranks number 12 among industrial markets). Now, as plastics competition grows more menacing, leather wants more chemical help.

The biggest part of this help is coming from a group of specialties* for finishing leather and increasing its sales appeal. The finishing job, fundamentally, is to emphasize leather's natural advantages, and minimize its disadvantages.

Leather Brags: Leather sellers point out these advantages:

- High tensile strength, with some (but not too much) stretch.
- Suppleness, softness and flexibility.
- Resistance to puncture, tear and break.

For its first few thousand years little more than an accumulation of little-understood but workable know-how, the leather finishing craft has, within the past few decades, been in the process of becoming scientific.

To show how far it has moved: whereas twenty years ago virtually all leather finishing was done with caseins, now almost none is done with straight caseins (although in combination with synthetic resins they are popular). Behind this new technology is a pressing economic situation.

Selling Soles: Over 80% of all finished leather goes into shoes, but the shoe industry gets harder and harder to sell. As recently as the early post-war years, 70% of shoe soles were made of leather; since then the figure has plunged to 38% (but has remained fairly stable at this percent for the past three years).

In an effort to regain some of the
*Biggest supplier: Rohm & Haas.

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SPECIALTIES

lost sole market, leather chemists have come up with a treatment involving Standard of New Jersey's Vistenex (a polymerized isobutylene) and Hercules' Vinsol (a dark wood rosin)—said to provide 33% better wear. (The previous treatment for sole leather was glucose and epsom salts, which leach out in wet weather.)

Another cure for troubles of the sole is to plate a layer of vinyl chloride onto the leathers with a cement. (Armstrong Cork Co., Lancaster, Pa., is one of the leading voices for this technique.)

Uppers Are Higher: Leather is faring better in the shoe "uppers." When leather had 70% of the sole business, it also had 90% of the upper business—and it still has 83%. Resin finishes (almost every kind is used, but acrylics are biggest), with lacquer emulsion or water top coats, are replacing caseins on uppers. Usually these are pigmented to augment tanner-applied dyes.

Manufacturers of leather for luggage, hand bags, brief cases have turned to resin bottom coats, are beginning to replace the old nitrocellulose top coat with vinyls. Upholstery leather makers have switched almost exclusively to vinyl top coats.

One of leather's chief shortcomings has been poor water resistance. Much of recent work on finishes has been aimed at correcting this. The two most promising treatments are Dow Corning's Silflex, a silicone impregnation (waterproofs individual fibers, but doesn't plug breathing); and Bavon, a dodecyl succinic acid made from Koppers chemicals.

Gimmicks have also been developed by finishers to improve leather's saleability. Two, for example, are a leather bonded to Du Pont's Mylar (for a metallic look) and a silk screen process for printing designs on leather (using lacquers).

Over-all, the leather finish business isn't nearly so bad as it might seem. Although leather's share of various markets is generally declining, actual sales are on the increase. Shoe sales are greater each year (although for the past decade or two the public has varied little from its 3.25 pair/capita/year habit, the population is growing). Sales for 1955, now expected to reach 580 million pairs, will be 100 million greater than 1948 sales, nearly 30 million greater than was anticipated in January.

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Rubber—an excellent modifier and lubricant for natural and synthetic elastomers. Replaces costly vegetable and natural waxes.

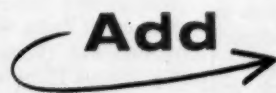
Paper Box Board—improves coatings and other functional properties.

Cork Tile—gets a new high gloss, scuff-resistant finish.

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RECIPE BOOK: How to tint and compensate for time, sunlight and weather.

Match Play in Paints

Bright and gaily painted automobiles, as they come from the production line, may be a fine sales gimmick for the maker and his dealer, but they are a pain in the paint can for the automobile refinisher.

It was a tough enough job for the repainter to match exactly the dozen or so colors on the subdued and conservative automobiles of 1949. But today, with standard automobile color choices including a minimum of 25 colors (alone or in combination), the job has become much worse.

Variety, moreover, is only one aspect of the problem; there are complications induced by sun-fading and general weathering, unplanned variation in color from the makers' specifications. As a result, a fender retouched, some months later, with paint from the original batch cannot be guaranteed to match.

But soon, many automobile refinishers will be getting help with their problems in the form of a new system developed by Sherwin-Williams. Using only 12 colors and a 32-page guidebook, virtually all colors on '54, '55 and '56 autos can be duplicated at any stage of weathering.

Where to Start: S-W couldn't have

devised its new system without a careful analysis of the problems it was up against. Three of the headaches most frequently encountered:

- The trend toward light, pastel colors. It introduces the complication of poor hiding qualities, and demands extra care in selection of the undercoat.

- Flooding. Metallic finishes, which contain flecks of metal, have variations in the dispersion of these particles.

- Drifting. In spite of careful control measures, the colors applied to automobiles are not always exactly those the firm calls for in its standards. Paint that matches the standard won't match the car.

How Simple Can You Get? Add to these color vagaries the variations induced by ultraviolet light, by temperature extremes, or by aging in general, and it is obvious that no simple program can overcome all the difficulties. But S-W believes its 12 multipurpose colors will handle most jobs when used according to its instructions.

For the refinisher, the process works like this: the manner in which the paint has weathered is determined by inspection—to see whether the finish

has become lighter, darker, more or less yellow, blue, green, etc. With the help of the guide, the refinisher can see what colors to combine to equal these variations.*

Where "drifting" has occurred, it is almost invariably noted at the factory by paint experts. S-W can therefore include in its guide the data on differences, and keep the list of drifted colors up to date.

And to eliminate worries about hiding the undercoat, special primer sealers have been developed, which not only help in hiding colors but also prevent bleed-through.

With all the help the new guide and system give, however, S-W makes no claims that all refinishing problems can be solved by anyone. It still takes a skilled eye for color matching, and an experienced hand at mixing.

EXPANSION

Ten Year Step: Texize Chemicals, Inc. (Greenville, S. C.) is getting ready for its tenth birthday next year by acquiring another plant in Mauldin, S. C. The new facilities, formerly home of Rite Manufacturing Co., will be expanded by addition of two buildings, giving the firm a 75,320-sq.-ft. plant. Texize makes industrial and household chemicals.

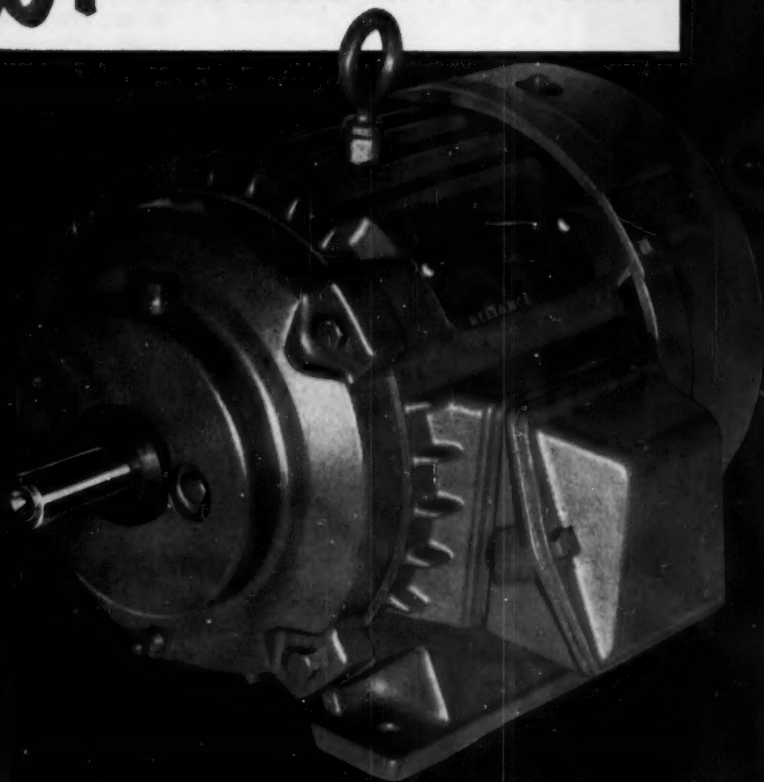
Compounded Cleaner: B. T. Babbitt, Inc. (New York) adds a new cleaner to its list with the acquisition of the Cameo Corp. (Chicago). A producer of scouring compounds—lately emphasizing its copper cleaner—Cameo will continue to operate as a wholly owned subsidiary.

Far East Branch: W. P. Fuller & Co. (San Francisco) is now building a new plant in the Philippines, near Manila. The firm will be known as Fuller Paint Manufacturing Co. (Philippines) Inc., and is the joint venture of Fuller with Warner, Barnes & Co., Ltd. (Manila); and Aboitiz & Co. (Cebu). Plant is expected in operation by early next year, can produce 300,000 gal. of paint yearly.

Ready to Build: With the letting of a \$3.5-million general contract, War-

* Some of the new automobile paints cannot be satisfactorily darkened by adding black; others won't lighten properly with white. Some are greatly affected in durability by addition of tinting colors.

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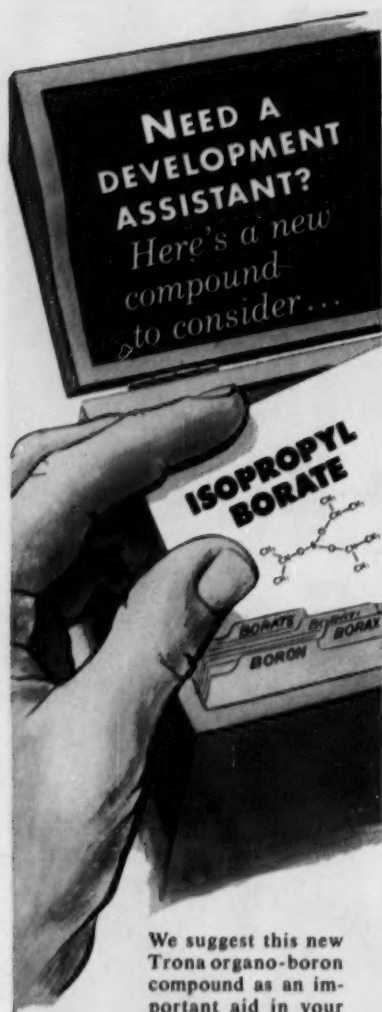
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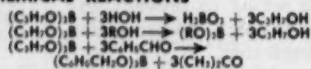


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SPECIALTIES

ner-Lambert Co. finalized its plans for a new cosmetic plant in Lititz, Pa. The L-shaped structure will feature a two-story manufacturing area, a one-story warehouse, and should be in operation in June '56. Some 450 persons will be employed in the 335,000-sq.-ft. facility.

EQUIPMENT

Single Shot: A new type of packaging unit, for dispensing single doses of liquids and creams, has been marketed by Unette Corp. (New York). Tube is made of saran, is a slender, transparent unit, sealed at the dispensing end with a special compound. When squeezed, the seal breaks and contents are expelled. Touchette, a special form, has a cotton tip for applying liquids.

The new container can be filled to within 0.01 cc. accuracy, and is available in several capacities. Unette, the manufacturer, has plants in Livingston, N.J., and Burbank, Calif., is currently packing Nupercainal for Ciba, and Adam's Rib perfume for Lenthéric, Inc.

Hot Stuff: A special cleaning gun designed to handle live steam has been marketed by Oakite Products, Inc. (New York). The unit dispenses both steam and cleaning solution simultaneously, is said to be simple to handle, light and nontiring to use. Oakite calls it the Hurriclean Gun.

PRODUCTS

Grime Chaser: Plastone Co., Inc. (Chicago) is broadening its line of household specialties with a new compound for glass cleaning. Tagged Mrs. Turtle's Streak-Proof Glass Cleaner, it is used in a special polyethylene squeeze container. The spray bottle is refillable (it sells separately for 49¢; a 20-oz. refill costs 49¢; the special combination sells for 79¢). Big point in the sales pitch: the new cleaner gives glass a finish that "repels" dirt, dust and rain.

Rat Repellent: Still on the secret list but already talked about in the trade is a new rodent repellent developed at Armour Research Foundation of the Illinois Institute of Technology (Chicago). The foundation credits Francis Jucaitis with discovery

of the chemical, which is not yet on the commercial market.

For Thick Curls: A thick, nondripping wave cream is the main feature of a new home permanent kit put out by the Toni Co. (Chicago). Included in the Prom home wave units, the cream is "homogenized," and is self-neutralizing.

Bigger Blizzards: A king-size, 16-oz. aerosol container of multicolored Frosty Snow for bigger pink, red, blue or white Christmases will be sold this year by U.S. Packaging Corp. (New York).

Plastic Stripper: The practice of decorating plastics with special lacquers isn't without its problems. And in cases where the improper finish has been used, Northwest Chemical Co. (Detroit) is now selling a special stripper compound, Liquid Stripper No. 11. Said to have a wide, but not universal, application, it can remove organic finishes from most plastics in about four minutes, when used at 150-212 F. It is said to be noncorrosive and noninjurious to most plastics.

Dry Lube: Useco-Lube is the new dry lubricant produced by the U. S. Engineering Co. (Detroit) for use on all metallic surfaces. Said to produce no "buildup" or sticking, it can be used at temperatures from —30 F to 800 F.

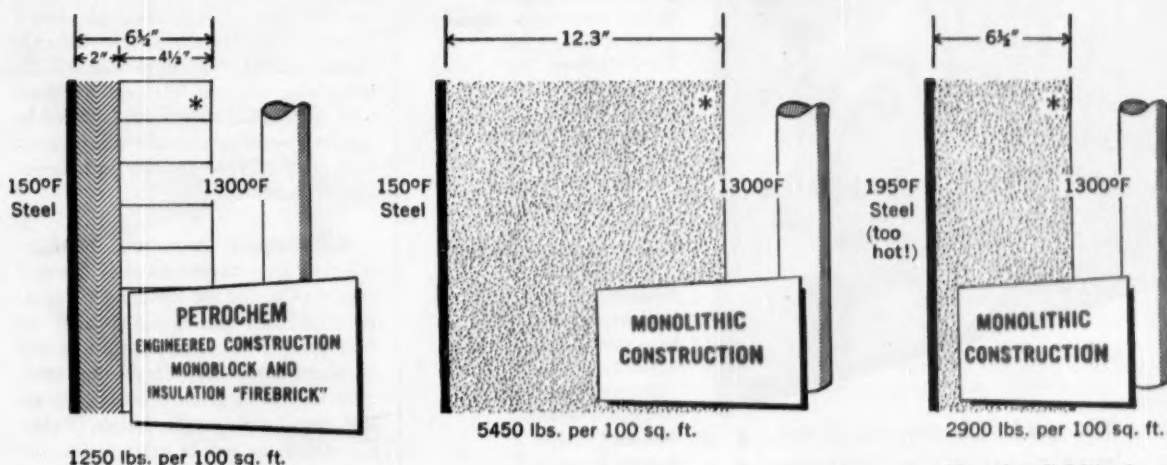
For Hard Plastics: Vinyl plastisols with almost any degree of hardness are possible when formulated with a new dispersant developed by Carbide and Carbon Chemicals Co., the firm says. Tagged Monomer MG-1, the compound is said to work with styrene, vinyl chloride, vinyl acetate, acrylates, and other monomers, although it is with vinyl chloride that the most spectacular results have been achieved. The additive is a nonvolatile, low-viscosity, difunctional ester that polymerizes through the vinyl route.

Coagulation Special: National Aluminate Corp. (Chicago) is introducing what it terms an outstanding chemical for coagulating turbid river and surface waters for industrial and cooling use. A polyelectrolyte, Nalco 600 is also suggested for waste-water treatment. Nalco 600 is a basic noncor-

In furnaces as in processes compare the design to judge the advantages

As an example:

The wall construction of all Petrochem-Isoflow Furnaces is designed for 150°F maximum outside shell temperature.



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Also, this construction has low heat storage capacity, speeds both heating and cooling. Its light weight requires less concrete foundations and steel supports.

Compare and your judgment will affirm

Petrochem-Isoflow Furnaces are Most Efficient by any Comparison

PETROCHEM-ISOFLOW FURNACES

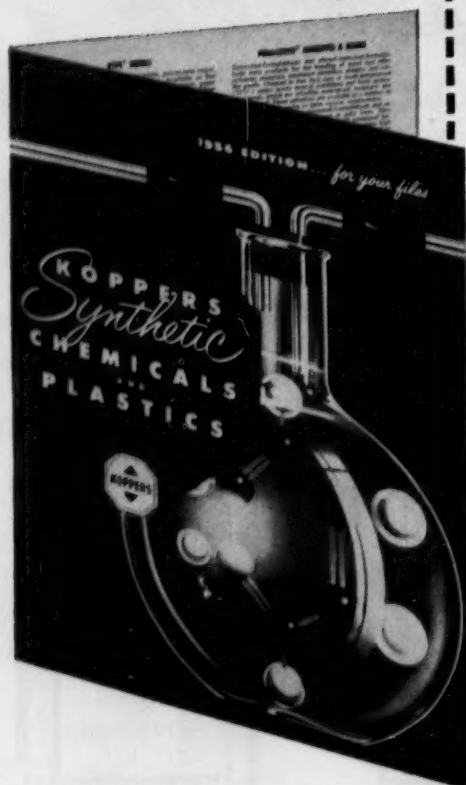
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SPECIALTIES

rosive (to steel) liquid, is used in low dosages and at low cost, the firm says.

On the Beaten Path: A silicone additive to produce a hammer finish has been developed by Dow Corning Corp. (Midland, Mich.). Called F-4290, it is added in slight amounts (0.1-1%) to conventional metallic paints. It will boost gallon cost only 3-5¢, has good storage life, and can give a varied effect. Price: Approximately \$10/gal.

Detail Work: For rapid molding of intricate parts with varying wall thicknesses, three new premix Plaskon polyester resins have been developed by the Barrett Division of Allied Chemical & Dye Corp. (New York). Designated PE-40, PE-51, and PE-55, the resins are also claimed to work well with difficult contours, molded-in inserts, to make possible the production of reinforced plastics on a large-volume basis.

Rail Gripper: A railroad specialty is a new joint development of General Electric Co. and the Reading Railroad. By chemically cutting the invisible oil film spread on rails by train wheel bearings, it has been found that locomotives can be given a better grip on the rails, pull longer freight trains. By saving the use of extra trains, the burning of rails, and the flattening of wheels, railroad costs should be cut measurably.

Full House: Platinum Balm, a powdered industrial hand cleaner made by The Chemical Corp. (Springfield, Mass.), contains Ivory soap, white degerminated corn (abrasive), water conditioners, lanolin and hexachlorophene.

PATENTS

Sticky Sheets: Alan Hall and Ewart Walton, of Leicester, England, have invented a new type of sheet adhesive (U.S. Pat. 2,723,207) for B. B. Chemical Co. (Boston, Mass.). The glue, heat-activated and composed of unmasticated natural rubber (3-1 parts) and uncured novolak resin (1-3 parts) with an aldehyde, is applied to a porous fibrous base.

Fire and Water: A combination treatment for textile fibers, designed



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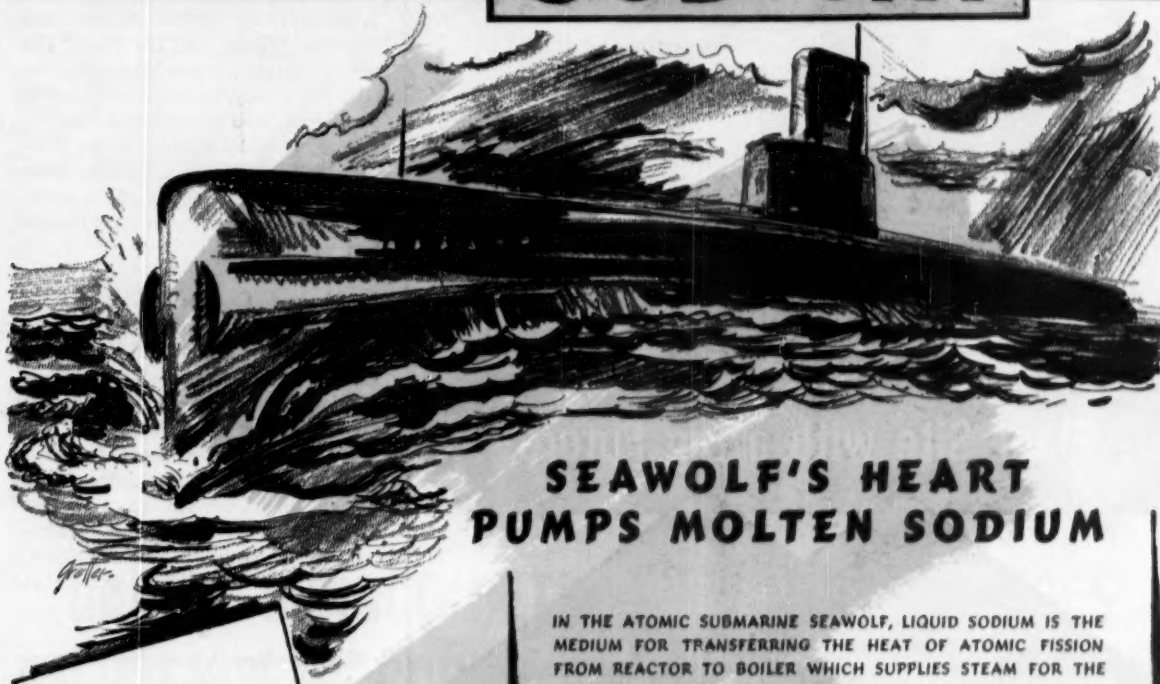
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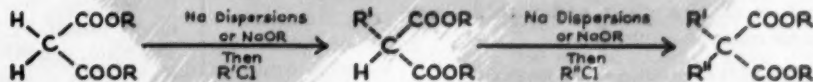
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IN THE PRODUCTION OF MANY DRUGS AND FINE CHEMICALS, SUCH REACTIONS AS ALKYLATION, CONDENSATION, OR REDUCTION ARE OFTEN USED. FOR EXAMPLE, IN MAKING BARBITURATES, THE ACTIVE HYDROGENS OF A MALONIC ESTER ARE FIRST REPLACED BY SODIUM, AND EVENTUALLY BY AN ORGANIC RADICAL (SEE EQUATION).



SODIUM ALCOHOLATES ARE COMMONLY USED IN THIS REACTION. IT IS ALSO POSSIBLE IN MANY CASES TO USE SODIUM DISPERSIONS IN PLACE OF THE ALCOHOLATE. DISPERSIONS WITH PARTICLE SIZE OF THE ORDER OF 15 MICRONS ARE EASY TO PREPARE, AND CAN BE USED OVER A WIDE RANGE OF TEMPERATURES (-80°C TO 400°C).

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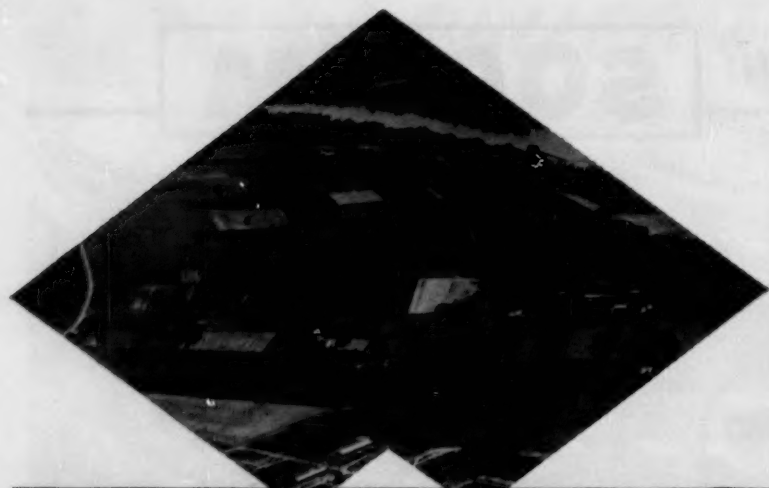
ALCOHOLATES SUCH AS SODIUM ETHYLATE OR METHYLATE CAN BE PURCHASED, OR THE MANUFACTURER CAN PREPARE THEM HIMSELF BY ADDING SODIUM BRICKS OR A STREAM OF LIQUID SODIUM TO AN EXCESS OF ALCOHOL IN A NITROGEN PURGED REACTOR. WHERE ALCOHOL-FREE ALCOHOLATES ARE REQUIRED, THEY CAN EASILY BE PREPARED FROM SODIUM DISPERSIONS. DETAILS ARE AVAILABLE ON REQUEST FROM U.S.I.



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Baltimore & Ohio Railroad

Constantly doing things—better!

SPECIALTIES

to impart resistance to flame and water, has been patented (U.S. Pat. 2,723,212) by Ralph Aarons and Douglas Wilson for Du Pont. The process involves ammonium sulfamate (100 parts), dicyandiamide (5-20 parts), boric acid (5-30 parts), and a complex compound (0.3-1.8 parts) of the Werner type—trivalent chromium atom coordinated with an acyclic carboxylic acid group having at least 10 carbon atoms.

Aid and Comfort: Combine an aqueous dispersion of a protein (e.g., milk proteins, casein, soy bean protein, gelatin, egg albumin) and an aqueous solution of an ionizable soluble aluminum salt, along with aluminum hydroxide, and you've got an antacid compound. Laurene Paterson, of Adrian, Mich., devised the compound (U.S. Pat. 2,721,861), which precipitates from the solution prepared above, suggests it for internal use to combat acid indigestion.

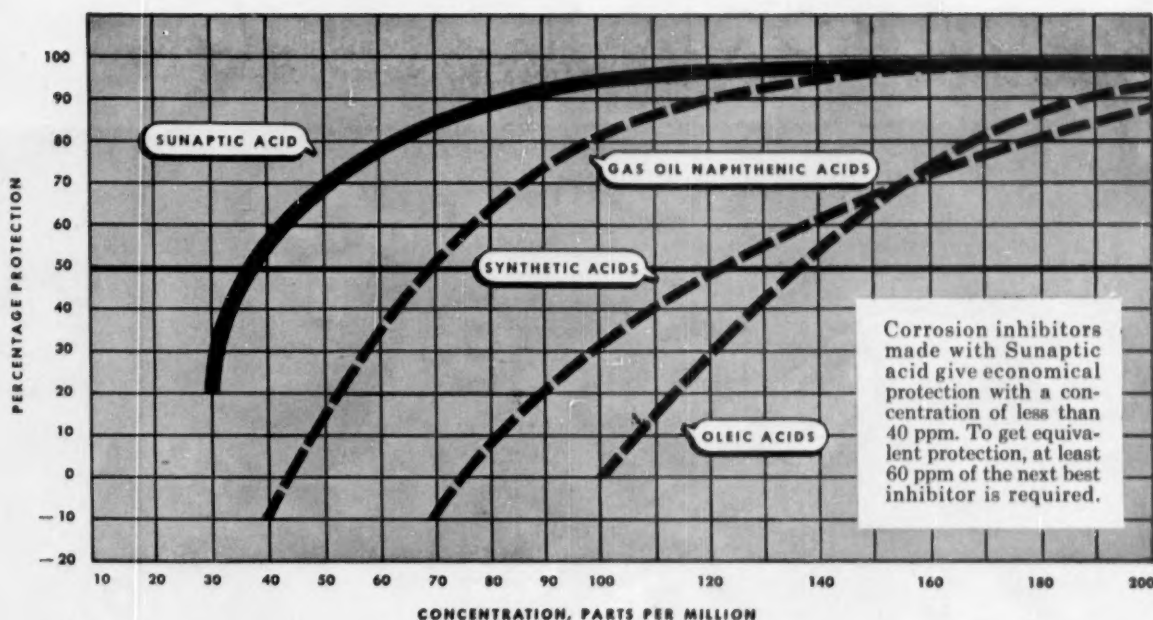
Suds Queller: A quaternary ammonium halide has been suggested by a Britisher, H. Yarrow (British Pat. 736351) for minimizing excess foaming of sewage effluents caused by anionic detergents. Syndets have created problems in several sewage plants.

Back and Filling

With the formation of Peterson Filling and Packaging Co. (Danville, Ill.), another of the better-known names in aerosol work is back in active business. Like H. R. Shepard, who recently created his own firm (Aerosol Techniques, Inc., Bridgeport, Conn., *CW*, Nov. 26, p. 112), Harry Peterson and his brother, Robert, have launched their own aerosol contract packaging firm.

Peterson Filling is taking over a 50,000-sq.-ft. plant in Danville, formerly owned by Hegeler Zinc Co. The plant, completely re-equipped, has the services of three railroads as well as handy access to water and power facilities. Edward and Julius Hegeler, of the zinc firm, are officers in the new company.

Harry Peterson was, until July of this year, president of Continental Filling Corp., a widely known Danville pressure packer, and his brother was Continental's sales manager.



UNIQUE SUNOCO PETROCHEMICAL INCREASES EFFICIENCY OF CORROSION INHIBITOR OVER 50%

*High-molecular-weight Sunaptic acids
replace fatty, naphthenic and synthetic acids*

Corrosion of tubing and casing in oil wells and in crude oil pipelines is a major problem that can be minimized by corrosion inhibitors. Several promising corrosion inhibitors combine tallow diamine with fatty, naphthenic or synthetic acids. The results of tests with these inhibitors were considered excellent until an inhibitor containing Sunaptic acid was tested. The Sunaptic acid inhibitor, which costs about the same per gallon, proved to be 50% more efficient than the next best inhibitor. This increased efficiency can save thousands of dollars a year in one oil field alone.

If you are making a product with fatty, rosin, synthetic, or ordinary naphthenic acids, there's a good chance Sunaptic acids can help you improve your product. These unique high-molecular-weight acids have many unusual properties: no olefinic unsaturation, high resistance to oxidative rancidity, low freezing or pour points, and a higher hydrocarbon solubility than ordinary fatty and rosin acids.

Sun Oil Company has two Technical Bulletins de-

scribing both the properties of Sunaptic acids and many possible uses for them. To get copies of these Bulletins, see your Sun representative, or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. CW-12.

Sun Oil Company produces many other petrochemicals. These include:

**BENZENE, TOLUENE, MIXED XYLENES
PROPYLENE TRIMER AND TETRAMER
SULFONATE WS (water soluble sulfonates)
PDO-40 (polymerized drying oil)**

The list of Sunoco Petrochemicals is growing rapidly... several new Sunoco Petrochemicals will be introduced shortly. If you have a problem that may be solved by a new type of petrochemical, we'll be glad to discuss it with you.

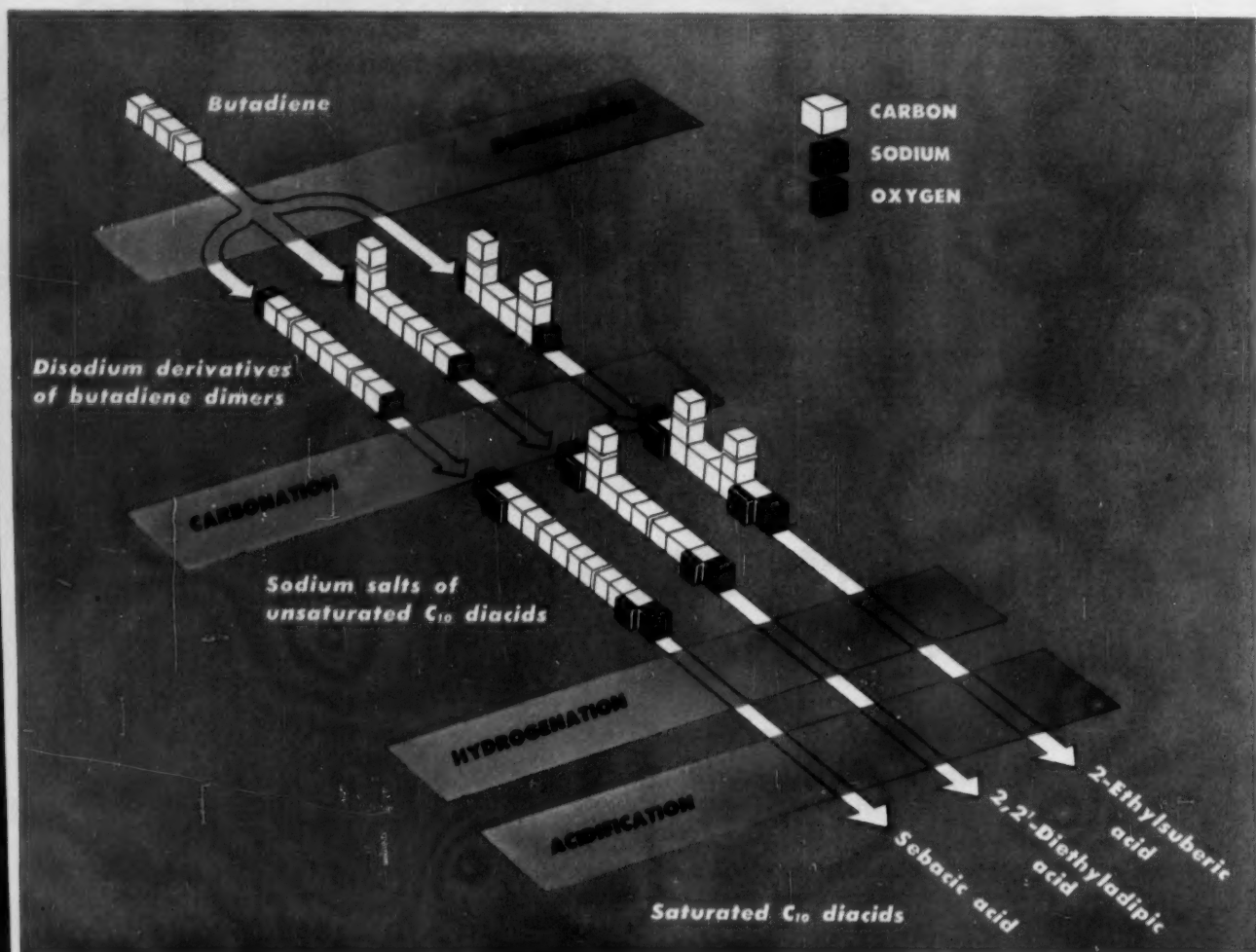
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PRODUCTION



SEBACIC FROM BUTADIENE: Three* possible reactions, three* products. And . . .

That's Why They Call It Iso

U.S.I.'s isosebacic acid process may well be outlined by a French patent showing a way to get mixed isomers of sebacic acid from butadiene (above).

What's more, a U.S. patent granted to Esso Research reveals that U.S.I. is not alone in the field.

Here's how the two processes work:

If you were asked to go from a 4-carbon-atom starting material, say butadiene, to a 10-carbon-atom product, say sebacic acid, chances are you'd find refuge in either (a) some fairly complex chemistry or (b) some mighty

sloppy mathematics. Actually, neither is necessary. Just take a look at the reactions above: butadiene reacts with sodium to form the disodium derivative of the 8-carbon dimer; the addition of carbon dioxide converts it into the sodium salt of the unsaturated 10-carbon acid; hydrogenation and acidification produce the desired acid.

And that undoubtedly is the basis of U.S.I.'s new, \$10-million isosebacic acid operation at Tuscola, Ill. (*CW Technology Newsletter*, Nov. 12). The firm is not talking about the process, will say only that it starts with butadiene, employs sodium, sulfuric acid and "other raw materials," which will be available at its neighboring installation. (The "other raw materials" would be carbon dioxide, by-product from its newly installed Girdler natural gas reforming unit.)

Keeping It Fine: Secret of the initial dimerization, as pointed out in the French patent (1,093,096) granted to U.S.I.'s parent, National Distillers, is to use the sodium in finely dispersed form. Previous attempts to cause a material like butadiene to react in

* Actually four. But the fourth product (3-ethylsebacic) is found only in traces.

the presence of sodium led to entirely different results. For instance, sodium in massive form normally reacts with butadiene to yield a complex mixture with a relatively high molecular weight along with large amounts of polymers resembling Buna rubber.

Using finely divided sodium, however, and controlling the conditions carefully, U.S.I. is able to get 10-carbon-atom products from butadiene in yields as high as 80-90% (based on the butadiene). Here are some of the conditions:

- The average particle size of the sodium must be less than 50 microns. It can be prepared most conveniently as a dispersion in an inert hydrocarbon or an ether before the reaction is started. Potassium can also be used in place of the sodium, but it's less desirable. Chemically pure sodium is not needed; alloys of sodium with potassium, calcium or lithium work fine.

- The ether can be any one in which the ratio of oxygen atoms to carbon atoms is not less than 1:4. It should not contain groups (e.g., hydroxyl, carboxyl) that react with the sodium. The ether can be diluted, but in general it should make up at least 50% by weight of the reaction medium.

- In addition, the mixture should contain a small quantity of a polycyclic aromatic such as naphthalene or phenanthrene. Concentration of these will range from 0.1 to 10% by weight.

Though the exact role of these active hydrocarbons is not fully understood, they seem to facilitate the transfer of metallic sodium through the film of reaction product to the butadiene in the reaction zone. The result is an increase both in the selectivity of the dimerization and in the speed of the reaction.

- The reaction temperature should be kept below 0 C, preferably between -20 and -50 C.

- To convert the disodium derivatives into the sodium salts, the dimerization and carbonation must be carried out in separate steps. Carbonation hinders the completeness and selectivity of the reaction.

In a typical example, the process worked like this:

The reaction vessel, equipped with

an agitator and gas-inlet tube descending into the reaction mixture, was purged with nitrogen. Dimethyl ether (1,000 parts), *p*-terphenyl (3 parts) and sodium (69 parts) were dispersed in iso-octane (70 parts). The sodium had an average particle size of 15 microns.

Butadiene (162 parts) was bubbled through the mixture for 4 hours while the temperature was maintained at -25 C. After all the butadiene had been added, carbon dioxide in solid form was dropped into the vessel. Excess carbon dioxide was driven off—along with the ether and iso-octane. The product consisted of the sodium salts of the unsaturated 10-carbon acids and small amounts (less than 5%) of higher polymers of butadiene. The solution was hydrogenated, and a mineral acid was added to form a product that contained 2,2'-diethyl-adipic acid (8%), 2-ethylsuberic acid (36%), sebacic acid (23%) and 3-ethylsuberic acid (traces).

The Other Approach: In any case, U.S.I. is looking on its product as a promising starting point for vinyl resin plasticizers, as well as for polyamides, alkyd resins, polyesters and synthetic lubricants, among others.

And apparently, the synthetic lubricant is what has enticed Jersey Standard into exploring the same broad area. In its process (U.S. Pat. 2,716,662), however, Jersey Standard starts with a cyclic material to form a polycyclic dibasic acid. By starting with cyclopentadiene, for instance, it ends up with the dicyclopentadiene dicarboxylic acid.

In general, the preferred conditions call for finely divided sodium (average size under 50 microns), control of temperature to 30-35 C, and pressure during the carbonation of about 1,000 psi. The activator is anhydrous methanol, ethanol or isopropanol in small quantities (less than 1/10 mol equivalent). The alcohol, it postulates, activates the sodium, either by removing surface impurities or by forming small quantities of sodium alcoholate.

Although Jersey Standard has revealed no plans for commercializing the process, it points out that the product looks good as a solvent and plasticizer for resins, for modifying alkyds, making polyester lubricants, as an ingredient of specialty greases and as an intermediate.



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Technical data and samples will be sent immediately upon request . . . without obligation.



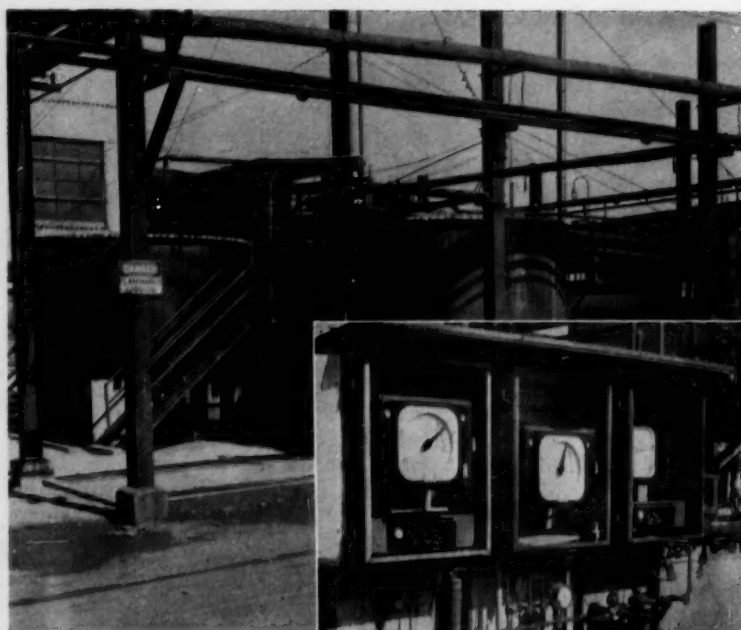
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PRODUCTION



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Tight Rein on Pollution

The chemical industry's pollution consciousness has reached the point where potential waste disposal problems are a prime consideration in the evaluation of new products and processes. To keep the upper hand over objectionable plant effluents, many companies accord the same attention to pollution control operations as to production operations.

National Aniline Division of Allied Chemical & Dye Corp. (Buffalo, N.Y.), for example, recently bolstered its antipollution campaign by the addition of a \$50,000 control pilot plant to study chemical and biochemical treatments of waste arising from new or additional products. Here's how it fits into the picture:

Over the past 18 years, National Aniline has built up a pollution research laboratory equipped with all the required specialized equipment and manned by industrial wastes and water pollution experts. This lab determines waste loads and their characteristics, defines the problems, and develops methods of treatment that do not come within the experience and knowledge of personnel in other departments. Once the necessary measures have

been set up, it supervises pollution control operations and makes stream surveys in relation to discharging existing and potential wastes.

To ascertain just what corrective measures must be taken to render waste suitable for discharge to the city sewer system, the lab first determines the load in terms of B.O.D. (biological oxygen demand), acidity or alkalinity, chlorine demand, color, solids content, and toxicity. All these factors are measured for mixtures and for individual wastes at their respective process sources.

Wherever possible, process changes are made to reduce pollutional characteristics of waste liquors at the source. Phenolic wastes, for example, have been eliminated by limiting the introduction of phenols to processes in which they are entirely consumed.

But in cases where process changes alone can't produce the desired results, the pilot plant takes over development of suitable treating methods. Very often these investigations include recirculation, evaporation, mixing, chlorination, neutralization, absorption, flocculation, electrolysis, filtration



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WGD 5862

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December 10, 1955 • Chemical Week

63

Here's how you can use

STRATEGIC PURCHASING

*to help your company maintain
a sound competitive position*

As profit margins tighten, your purchasing strategy becomes a vital force for success.

The way you purchase heavy chemicals, for instance, can influence your company's profits in the years ahead.

So it becomes increasingly important for you to seek every possible economic advantage when you select a chemical supplier.

Here, for example, are a few things to look for, when deciding on a source for caustic soda, chlorine, and other chemicals:

1. Supply security. How flexible are your supply lines? For instance, a supplier with plants located on deep water may be able to offer you a choice of rail or water delivery. This can insure you steady supply, in case of rail service interruption.

2. Engineering help. A supplier's

engineering staff can often be valuable to you when you are setting up a new chemical process or caustic and chlorine handling systems—not only with advice, but with actual design assistance.

3. Smooth processing. You'll find it helpful to work with the supplier's technical service men who visit you periodically. Often these men can spot potential problems and ward them off before they cause you trouble.

4. Safety programs. Your men can benefit from safety suggestions offered by your supplier. You should have on tap the latest in safety equipment, plus up-to-date information on safe handling of chemicals.

5. Economy. Choose a supplier who wants to help you cut your operating costs; who will go all the

way with you in arriving at the best, most advantageous method of shipping and handling for your conditions.

6. Experience. Above all, choose a supplier who is familiar with your industry. It takes years of experience to acquire an understanding of the problems you face, and the know-how to help you solve them quickly and economically.

Are you getting your fair share of these strategic purchasing advantages?

Many of our customers in the chemical industry feel that they get these advantages in buying from Hooker, a supplier of basic materials to the chemical industry for fifty years.

In the light of the growing importance of these factors, isn't this a good time to review your policies on sources of chemical supply?



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PRODUCTION.

and biochemical oxidation in various combinations.

Typical of the material that must be chemically treated is National Aniline's thiosulfate waste. To reduce B.O.D., thiosulfate-bearing liquors are treated with sulfuric acid under conditions that cause sulfur dioxide (first released) to react with the remaining thiosulfate, reducing it to sodium sulfate and sulfur. The latter is separated by filtration; sulfate in the effluent is not harmful to the receiving stream. And, in addition to cutting B.O.D., this treatment reduces chlorine demand by 1.8 pounds for each pound of thiosulfate destroyed.

Standard treatment of waste acids is neutralization. The pilot plant contains units for neutralizing such effluents with hydrated lime, separating the resulting suspended material by an aero accelerator and filtration, and passing the clarified liquor through a biochemical filter for destructive oxidation of organic matter. Since the start of this program 13 years ago, National Aniline has used more than 50 million lbs. of lime for acid waste disposal.

Sludges that might introduce suspended solids into the receiving stream are dumped in a remote area or, in the case of certain organic sludges, incinerated. One sludge with a high arsenic content is barreled and barged 110 miles out to sea for dumping.

Big Business: As an integral part of National Aniline's planning, pollution prevention and abatement commands the attention of the entire company organization. Responsibility for its effectiveness is delegated to research, engineering and operating departments, which coordinate the various phases of the over-all program. No new process is permitted to go into production until it has received the approval of this pollution control group.

How does the program show up in the ledger? On the debit side, the company figures, it has cost at least \$2 million over the past 18 years. On the credit side, it has contributed to substantial savings through the recovery of by-products and usable effluents, reduction of avoidable material excesses, and elimination of thousands of tons of waste that otherwise would have added to the Buffalo River's pollution load.

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Like more information or technical help? Simply call your nearby DIAMOND representative. Or write DIAMOND ALKALI COMPANY, 300 Union Commerce Bldg., Cleveland 14, Ohio.



**Diamond
Chemicals**

PRODUCTION EQUIPMENT

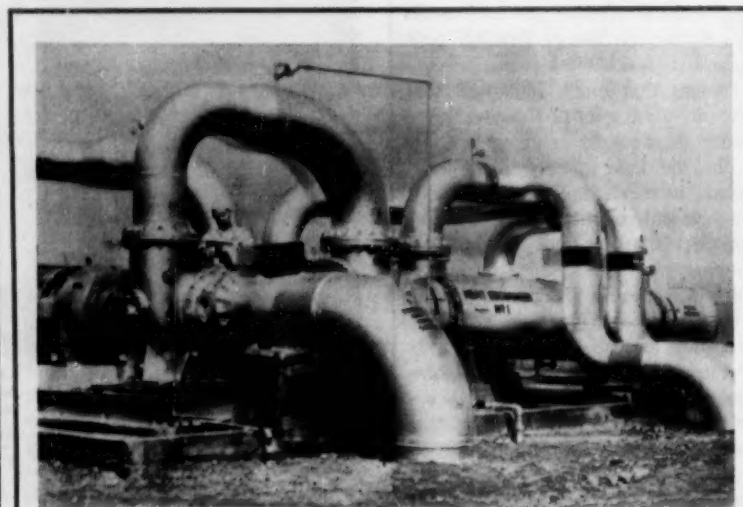
Package Autoclave: To add long life to the packing seal on its new high-pressure autoclave, High Pressure Equipment Co. (Erie, Pa.) has developed a water-cooled drive shaft. Another safety innovation is the unit's completely enclosed base, which permits air purging as a guard against explosive vapors contacting the heating elements. Autoclaves come completely equipped with heater, motor, gauge, and blowout assembly for pressures of 500-30,000 psi., capacities from 1 liter to 20 gal.

Package Boiler: Eclipse Fuel Engineering Co., (Rockford, Ill.) is out with its new Red Band line of Scotch-type steam-boiler plants. All design details, such as large steam space, increased water storage, and 300% greater combustion volume, have been worked out to minimize fluctuations in

steam pressure, and to meet peak loads quickly. Boilers range from 12 to 125 hp. for gas or oil firing, or combined fuels.

Viscosity Control: Norcross Corp. (Newton, Mass.) now offers its Model M8C pneumatically operated controller for completely automatic regulation of viscosity. The unit consists of a Model M8 measuring element, which determines viscosity by the time it takes a piston to fall by gravity through a measured sample, and a Model C control station that operates valves to add solvent when necessary. The process control is particularly suitable, says Norcross, for applications requiring constant correction for evaporation losses.

Infrared Analyzer: For continuous monitoring and control of liquid and gaseous process streams, Beckman Instruments, Inc. (Fullerton, Calif.)



Pipe Maze Traps Atomic Heat

WASTE HEAT is one thing that atomic reactors produce in abundance. To put it to good use, General Electric engineers at AEC's Hanford plant (Richland, Wash.) have installed an elaborate heat transfer system (shown in part above). An ethylene glycol-water solution picks up heat from the nuclear reactor, delivers it to

air conditioners in various Hanford buildings. System is maintained under pressure to prevent accidental leakage of radioactive water into heating circuit.

Though its initial cost isn't competitive with conventional heating equipment, the system's expected to make up the difference in a few years by saving an estimated \$59,000 annually.

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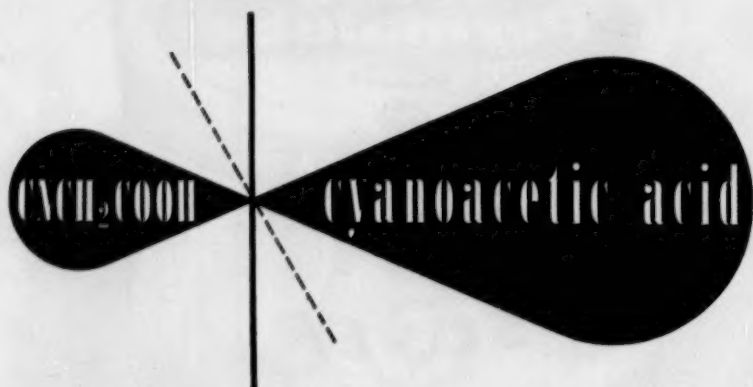
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PRODUCTION

offers its Model 176 dispersive infra-red analyzer. Combining the sensitivity of a laboratory spectrophotometer with the dependability of a commercial instrument, the device features a single beam spectrometer, with slit-width and wave-length adjustment controls, enclosed in a rugged, explosion-proof case. An amplifier that's operable at distances up to 300 ft. from the detector, and a recorder (modified strip chart or circular chart type) complete the setup. Performance includes photometric accuracy to within 1% transmission, drift of less than 1% a day.

Photoelectric Analyzer: Manufacturers Engineering & Equipment Corp. (Hatboro, Pa.) has brought out an instrument that monitors not only chemical processes, but also its own operation. While it's analyzing, recording and controlling processes involving liquids, vapors or gases, the Model III photoelectric analyzer periodically and automatically checks and resets itself to compensate for smudges on cell windows or other such sources of error. Aside from its utility in liquid analysis, the instrument is said to detect quantities of such substances as mercury, ozone, naphthalene, sulfur dioxide, etc., as low as a few parts per billion in air.

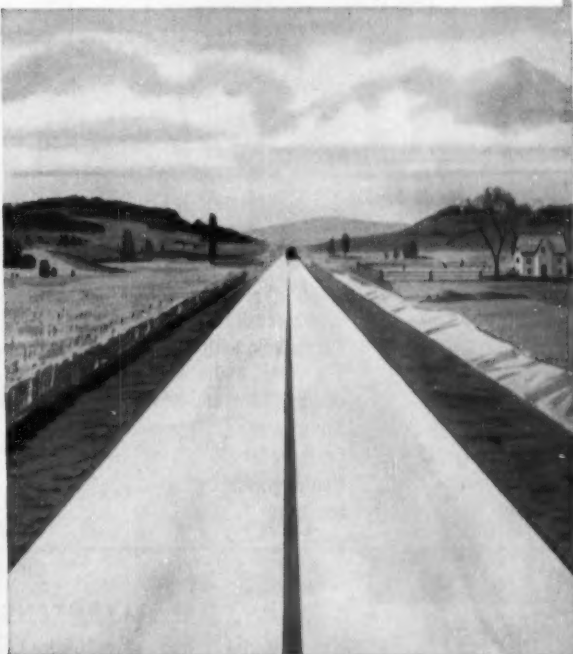
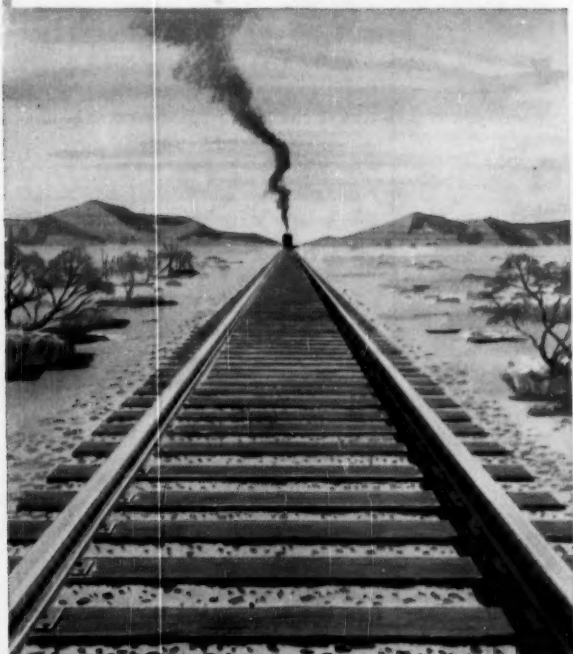
Slurry Valve: Stressing better control of abrasive and corrosive flows, Equipment Engineers Inc. (San Francisco, Calif.) announces an advanced development in Krebs rubber slurry valves, designed to eliminate common pinch-valve deficiencies. The Krebs valve features a massive molded rubber section to assure maximum resistance to abrasion, is closed by hydraulic pressure applied by remote fingertip control.

Flow Indicator: The Bull's Eye check valve indicator, now available from Fischer & Porter Co. (Hatboro, Pa.), is said to be the first to combine flow indication with positive check of back-flow. Designed primarily for LPG and anhydrous ammonia service, it features a self-aligning soft-seat flapper, two 1/2-in. thick windows on opposite sides of the body fitting.

Pressure Mixer: The combination of agitation with constant pressure, em-



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INDOPOL POLYBUTENES

Uses

- As a component of
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 - insulation and sound deadening mastics
 - calking compounds
 - cements
 - pressure sensitive adhesives
- In the preparation of tracing paper
- As a dielectric for condensers
- As a lubricant in
 - aluminum drawing and rolling
 - special high temperature services

Advantages

- High viscosity
- Compatible with vegetable oils, aliphatic and aromatic solvents and a wide variety of resins, waxes and pitches
- Minimum thermal decomposition residue
- Non-drying
- Color stable
- Non-migrating
- Low cost

Properties

INDOPOL POLYBUTENES

GRADE	L-10	L-30	L-100	H-35	H-50	H-100	H-300
Average Molecular wt.	330	420	470	660	700	780	940
Viscosity							
Saybolt seconds at 100°F	114	516	1040	7900	14000	44000	140000
at 210°F	40.6	66.5	93.8	375	540	1010	3000
Poise at 77°F	0.36	2.0	4.8	38	75	200	800
Gardner-Holdt at 77°F	A-1	H	R	Z-2	Z-4	Z-6	Z-9
Viscosity Index	100	105	102	—	—	—	—
Weight-Volume							
Specific Gravity 60°/60°F	.831	.847	.854	.871	.878	.881	.894
Pounds/gallon	6.92	7.04	7.11	7.25	7.31	7.34	7.44
Color							
N.P.A. or A.S.T.M.	1.5	1.5	1.5	1.5	1.5	1.5	<1
Flash (Tag), °F	230	235	245	280	295	360	475
Pour Point (ASTM), °F	-65	-35	-25	0	5	+20	+35
Iodine No.	53	46	43	36	34	33	32
Refractive index (20/D)	1.4655	1.4730	1.4759	1.4860	1.4886	1.4918	1.4955

Information

For additional information on INDOPOL Polybutenes write for INDOPOL Technical Bulletin 12. Your request will be given prompt attention.

INDOIL CHEMICAL COMPANY



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PRODUCTION

played in its stainless steel mixing tanks, says Chas. Saucier & Son, Inc. (Minneapolis, Minn.), provides a smoothness and completeness of mixture not obtainable with ordinary equipment. Suitable for blending either free-flowing or viscous materials, the unit transfers mixed substances into production pipelines or other processing equipment by pressure rather than by pumps.

Glass Armor: Corning Glass Works has come up with a new type of protective coating for glass process piping. It's a snug-fitting, seamless sleeve of Fiberglas impregnated with polyester. Nonflammable and corrosion-resistant, the jacket is designed to carry the rated load of the pipe while holding the glass together in case of failure.

Butterfly Valve: Keystone Tool Corp.'s (Houston, Tex.) new lug-type butterfly valves are made with threaded bolt holes rather than the drilled holes normally used for between-flange connections. This design permits the flange on either side to be disconnected while the closed valve holds full operating pressure in the line on the opposite side. The valves are designed for use on vacuum or pressure lines handling liquids, dry materials or slurries, come in 2- to 12-in. sizes for use with standard ASA 125-lb. or 150-lb. flanges.

Solder-End Valves: Lunkenheimer Co. (Cincinnati, O.) has a new line of five bronze solder-end valves. Designed for use with Types K, L, and M copper tubing, they include three gate valves and a bronze swing check valve, rated at 125-psi. steam pressure and 200-psi. water, oil or gas; and one nonmetallic-disc globe valve, rated at 150-psi. steam, 300-psi. water, oil or gas.

Hot Transducer: An improved barium titanate transducer that permits ultrasonic processing at boiling temperatures has been developed by McKenna Laboratories (Santa Monica, Calif.). Unlike earlier ceramic transducers, which depolarized at 75-100 C, the new one operates effectively to 125 C, extends use of ultrasonics to food, drug and bacteriological processing that requires sterilization of transducers.



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RUBBER HEELS and SOLES	Fine Particle Size High External Surface Area	High Abrasion Resistance Increased Tear Resistance Reinforcement
GLASS REINFORCED POLYESTER RESINS, EPOXY RESINS	High External Surface Area Favorable Refractive Index	Thickening Thixotropy Ease of Dispersion
INKS	High External Surface Area Fine Particle Size	Anti-slip Bodying Ease of Dispersion
REPRODUCTION PAPER	High External Surface Area High Chemical Purity Fine Particle Size Non-settling	Surface Extender for Greater Contrast
FLOOR WAXES	Fine Particle Size Favorable Refractive Index	Anti-slip Ease of Dispersion
PLASTIGELS	High External Surface Area High Chemical Purity Favorable Refractive Index	Gelling Ease of Dispersion
PAINTS	High External Surface Area Favorable Refractive Index	Suspending Agent Flow Control
LATEX GLOVES	Fine Particle Size	Ease of Wetting Ease of Dispersion Emulsion Stabilizer High Tear Resistance
VARNISHES and LACQUERS	High External Surface Area Favorable Refractive Index	Flattening Suspending Agent Ease of Dispersion
PLASTISOLS	High External Surface Area Favorable Refractive Index	Thixotropy Thickening Ease of Dispersion
DUSTING POWDERS, DDT, SULPHUR	Fine Particle Size High Chemical Purity Low Bulk Density	Anti-caking



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() Cab-o-sil in Paints (#cpal-2)
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() Cab-o-sil in Polyester-Glass Reinforced Plastics (#cpla-1)
() Cab-o-sil in Plastics (#cpla-2)
() Cab-o-sil in the Reproduction Paper Industry (#cpap-1-2)

Technology

Newsletter

CHEMICAL WEEK

DECEMBER 10, 1955

Nitroparaffins are very likely to further buoy the already rising fortunes of ammonium nitrate in explosives. Chemical Engineer Frank Darrow and Edwin M. Scott, Jr., of Trona, Calif., use nitroparaffins and other nitrated organics in a new method of "shooting" the hard-to-detonate inorganic.

Their invention is intended to simplify Maumee Collieries' recently patented (U.S. Pat. 2,703,508) Akremite system of detonating ammonium nitrate mixed with carbon black (*CW, Market Newsletter, May 14*).

Here's how their method works: ordinary granulated or crushed ammonium nitrate is filmed with any one, or a mixture, of mononitromethane, mononitroethane, 1-nitropropane, 2-nitropropane, mononitrobenzene, n-nitrobutane. By themselves, none of these compounds are cap-sensitive, but any one permits ammonium nitrate to be "shot"—even in the open—by a No. 8 blasting cap.

Mixtures of any of the above mentioned nitro compounds with anywhere from 86% ammonium nitrate (with mononitromethane) to 95% ammonium nitrate (with n-nitrobutane) are said to be approximately equal to their own weight of standard 60% nitroglycerine dynamite. It's further alleged that too much nitro compound will render the mixture non-cap-sensitive, while mixtures made with lighter mononitroparaffins may contain up to 2-3% water and still be cap-sensitive.

Cold-forming of the specified mixtures reportedly presents no problem (since nitroparaffin freezing points range from -20 to -114 F); and, according to the inventors, neither does explosion hazard. Patents on these and similar mixtures have been applied for.

You'll be hearing more about these pharmaceutical research developments:

- Verazide—1-isonicotinyl-2-veratrylidene hydrazide—a new anti-TB drug discovered by researchers of the Universities of Melbourne and Sydney (Australia). According to its developers, the compound shows exceedingly high *in vitro* activity in a concentration of 0.06 microgram/ml. Verazide is claimed to be one-third as toxic as isoniazid (isonicotonic acid hydrazide), while longer-acting than the latter in test animals.

- A Russian-developed antibiotic said to be about 10 times as active as penicillin. Obtained from *Actinomyces subsp. tropicus*, the new antibiotic (called Albomycin) was isolated by G. F. Gause of the Academy of Medical Sciences of the U.S.S.R., who reports it to be well tolerated in large doses. It is alleged to be effective in treating pneumonia (especially in young children), meningitis (due to penicillin-resistant pneumococci) and the septic complications of dysentery and measles.

- Two new aldosterone-like steroids characterized by Upjohn chemists. More potent than aldosterone—used in treating Addison's disease—the new chemicals are not yet in clinical use. They're chiefly valuable as stepping-stones to powerful, as yet undiscovered, therapeutic steroids.

- A mechanical device for sterilizing vaccines with ultraviolet light. Developed by General Motors engineers, the apparatus whirled liquid vaccine into a microscopically thin film that is easily penetrated by ultraviolet radiation. Already—states GM, which collaborated with Michael Reese Research Foundation (Chicago) in evaluating the device—the new sterilizer has been successfully

Technology Newsletter

(Continued)

used for sterilization of hoof-and-mouth serum, purification of ACTH, blood plasma and rabies vaccine.

New chlorinated polyether resins out of Hercules are under evaluation this week by plastics molders. Trade-tagged Penton, the polymers are reported to possess good electrical and mechanical properties, low water absorption, high chemical resistance (to both organics and inorganics).

Potential applications: gears and bearings for fluid meters, business machines, refrigeration equipment; transparent, impermeable films possessing tensile strengths up to 25,000 psi; valves for chemical, water, and low-pressure steam systems; and electrical insulation for refrigeration circuits.

Cost of the resin is now stiff—\$6/lb., f.o.b. Berlin, N.J.—but that's purely a developmental price, says Hercules. Output is currently at the rate of tons/month from a pilot plant at the company's experiment station.

There's a surprise in store for pigment chemists who think they are on to all the tricks of making no-grind colors—dry powder pigments that can be mixed into a paint vehicle without milling. U.S. Pat. 2,722,485 (assigned to Seidlitz Paint & Varnish of Kansas City, Mo.) details a new and imaginative approach to the long-standing problem.

The new method yields pigment-resin particles for paintmaking by what is essentially a three-step procedure: (1) wet pigment presscake is kneaded with a phase-transfer vehicle that is a solution of a water-insoluble resin in a water-soluble solvent; (2) the mass is diluted with water to give a pigment-resin slurry (pigment and resin are water-insoluble, while the solvent is water-soluble); (3) pigment-resin particles are recovered by filtration, dried and sifted.

It remains to be seen if the technique will pose a serious challenge to flushing and resin chips, two proved ways of achieving the same end.

The feeling in the trade is that there's always room for a new method—particularly one that can be used to advantage by manufacturers of water-dilutable paints selling the "do-it-yourself" market.

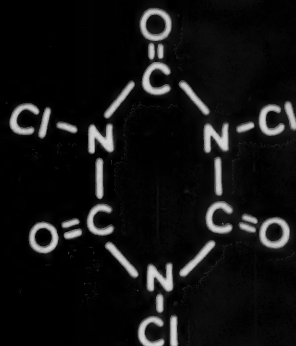
Salt Lake Tungsten, which operates a scheelite (calcium tungstate) refinery, will start up its ammonium paratungstate plant this month. The company, owned jointly by electronics-maker Sylvania Electric and Minerals Engineering Co. (Grand Junction, Colo.), now turns out calcium tungstate at the rate of 4,000 units/month. (A unit of tungsten is 20 lbs. expressed as WO_3 .) The new product it sees as being more easily converted into powdered tungstate for the metallurgical trade.

Although details of the new operation are a carefully guarded company secret, considerable sums are said to be involved. In the existing equipment, the crude scheelite is reacted with soda ash to selectively convert the insoluble calcium salt into the soluble sodium salt. Impurities are removed by filtration, and the calcium tungstate is reformed by adding lime.

The government is holding the price of tungsten up by means of its stockpile, but it has made it clear that it will stop purchasing in 1956. Salt Lake Tungsten hopes that the ammonium paratungstate will permit Western ores to be mined commercially without government props.

New product information:

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FORUM DAY: A new approach to the exchange of ideas among a company's researchers, it's a . . .

Tour de Force of Technical Communication

Any research man worth his salt stays on top of developments in his science. It's equally important for him to know what's happening within the research division of his own company—and that can be quite a task in a

chemical firm of any substance. Concerned with this increasingly difficult problem, a number of companies are turning to wholesale technical conferences—one-, two- and three-day meetings of all, or a large part, of

their research development divisions.

One firm that is making this plan work is Minnesota Mining & Manufacturing, whose research people recently completed a three-day idea-swapping session at the company's St. Paul headquarters.

Known as "tech forum days," the meeting period is 3M's approach to technical communications in an organization that has over 1,000 employees pushing research and product development in 40 separate product lines and several basic areas of science. In addition to facilitating the cross-flow of ideas on projects and problems, the forum provides a good place for management to get across what it expects from research and development.

At this year's meeting—only the second in the company's history—researchers heard from the chairman of 3M's executive committee, the company president, executive vice-president of sales, vice-president of research and product development, as well as members of the laboratory staffs.

Discussions ranged from "polymer research" to "what management expects of technical service." Exhibits, prepared by each laboratory, allowed participants to become informed by



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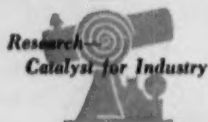
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RESEARCH

Story begins on p. 76



3M FORUM LEADERS*: Big meetings for big research.

eye as well as by ear. A dinner for all hands capped the convention.

Mechanics of the 3M plan are supervised by an intracompany group known as the technical forum. Comprising 50 management-appointed representatives from laboratory and engineering groups, the technical forum selects leaders for the various discussion sessions, runs the entire show. During the rest of the year, it keeps active disseminating technical information, running self-improvement courses, publishing a newsletter.

If popularity is any indication, forum days are a whacking success. Erwin Ulrich, chairman of the sponsoring technical forum, states that overflow attendance has made it necessary to issue tickets; each technical employee is given a chance to attend up to three discussion sessions.

No Monopoly: Although they aren't in as deep as 3M, others are involved with the technical convention gambit. Esso Research and Engineering, for example, last week convened a meeting of technical men from worldwide Esso research facilities.

Du Pont's 13 departments hold conferences that give all researchers within a department an opportunity to get together and talk shop. Dow and Monsanto, too, run intradivision

symposia. At the latter's Springfield, Mass., plastics plant, meetings are held twice a year for about 600 research, production and administrative staffers. And Humble Oil runs separate monthly conferences for its production and geophysical probers.

American Cyanamid has its researchers gather three or four times a year for a couple of days. Riverside Yacht Club (Stamford, Conn.) and Bear Mountain (N.Y.) Inn have served as meeting places.

Pfizer, too, runs research seminars, but on a more modest basis. U.S. Rubber, which maintains research in each of its manufacturing divisions, sees that each division's researchers meet twice a year with the staff of the company's Passaic, N.J., general laboratories. Carbide and Carbon Chemicals (division of Union Carbide), on the other hand, limits general research meetings at its South Charleston, W. Va., labs to project leaders and higher executives.

No two companies do things the same way; but most have come to the conclusion that big meetings (supplemented by reports, informal gatherings, etc.) are the key to good communications in big research.

*L. to r.: Ulrich, Robert Fleach (chairman of discussion sessions), Richard Brink (general chairman of the three-day event).

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RESEARCH

Front-Running Flameproofers

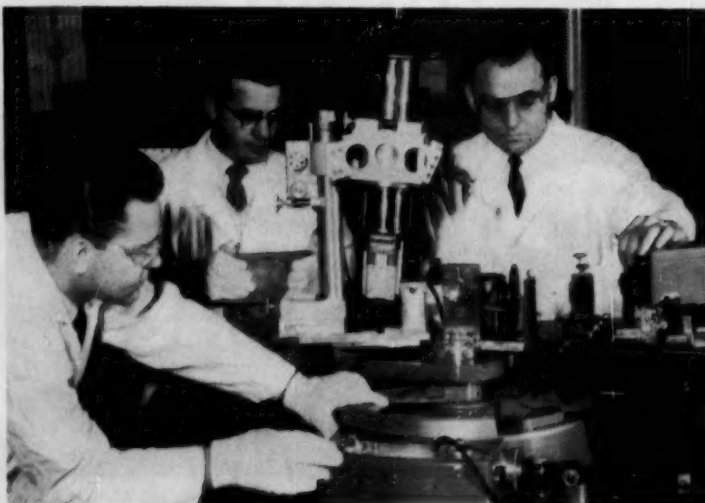
A new class of cotton textile flameproofers developed under U.S. Quartermaster Corps auspices is capturing the interest of chemical firms. Diallyl substituted phosphonates, the compounds impart flame resistance that is said to resist repeated laundering. A minimum of harm to textile properties such as tear strength and flexibility is also claimed.

Victor Chemical Works (Chicago) calls the compounds Phoresins, is trying to develop a manufacturing process under a QMC research contract.

Phoresin 1, diallylbenzene phosphonate, was shelved after failing to gain QMC approval. But Phoresin 2 (applied from aqueous emulsion) and Phoresins 3 and 4 (applied from solvents such as 30/70 ethanol-ethylene dichloride mixture) are getting a look for both civilian and military textiles. Chemical identities of the three are being kept secret.

The big hurdle for phosphonates is cost, so the first markets will probably be military. But Victor feels that its Phoresins might easily find their way into civilian lines if price is lowered as a consequence of high-volume production for the military. That's why the firm has shelved work on related compounds (e.g., triallyl, brominated diallyl, and other phosphonates) that may eventually prove better for civilian uses.

Meanwhile, at U.S. Dept. of Agriculture's Southern Regional Research Laboratories (New Orleans), pilot-plant trials are under way on another promising phosphorus flameproofers—an adduct-polymer emulsion formed by reacting triallyl phosphate with bromoform in water containing an emulsifier and a catalyst (potassium persulfate). The goal now is to make the product in reproducible 5-gal. lots. Relatively inexpensive, it reportedly imparts flame resistance (to



Accurate in Billionths

BUILT to gauge submicroscopic damage to atomic-pile materials, this new, double-diffraction X-ray spectrometer reportedly detects crystalline changes of as little as 0.000001 in. Designed by General Electric engineers (l. to r.) M. J.

Sanderson, D. C. Kaulitz and W. V. Cummings, the instrument is used in research at the AEC's Hanford plutonium plant to find longer-lived atomic-furnace elements. Potential uses also exist in industrial crystal studies.

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TILLAMOOK ROCK LIGHTHOUSE is one of the most unusual on the Pacific Coast. Built in 1881, it is a stone structure standing on a small rock islet one mile off shore at Tillamook Head, Oregon. Because of its exposed position, in deep water and open to the sweep of the Pacific, it has received many violent batterings from stormy seas. Occasionally waves break completely over the lantern itself, 133 feet above sea level. Landing is made only by hoisting from a boat.

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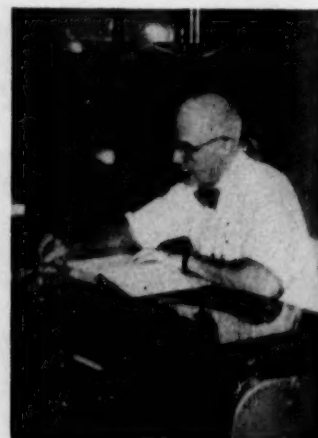
RESEARCH

cotton fabrics) that will survive 12 laundings.

Not all phosphorus flameproofing research is tinged with optimism, however. Considered failures by QMC: diallylisobutene phosphonate, 3-bromopropane phosphinic acid, and allyl bromophosphites.

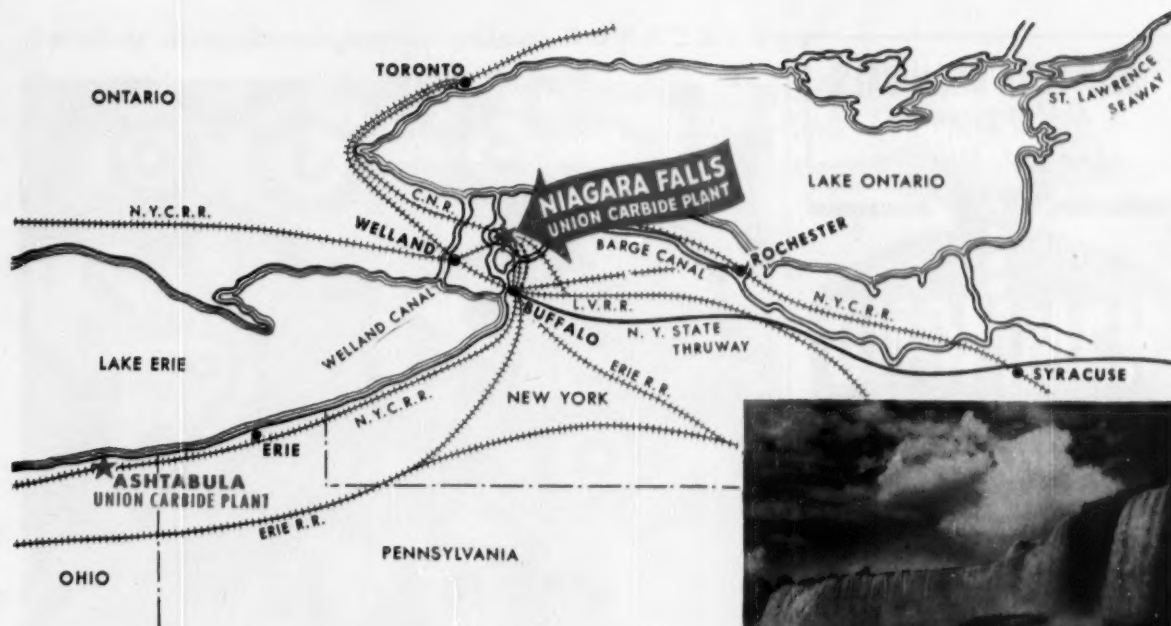
Monsanto, which has worked on phosphorus-containing resins for flameproofing cotton, reports that it is now doing nothing on this score. And Dow, whose interest stems from possible bromine utilization in the new resins, says it is not in any position at this time to answer questions.

Nevertheless, interest in phosphorus compounds is hardly on the wane. Tailoring them to fit the strict requirements of textile processors and customers is bound to get continued research attention.



Refurbished Archive

USERS of New York's Chemists' Club library now find it a better place in which to study. Newly redecorated, the library boasts functional, more-comfortable furnishings. To its comprehensive collection of chemical literature and museum exhibits, the library this year added a collection of rare handmade papers and watermarks bequeathed by the late Charles Roth. And it was recently designated depository for the papers of both the Commercial Chemical Development Assn. and the Chemical Market Research Assn.



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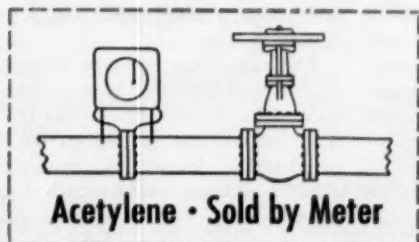
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RESEARCH



ESSO'S BLACK: In hand, the key to gamma gasoline.

Pipe Dream Coming True

First returns were in last week from Esso Research and Engineering Co.'s new radiation laboratory (*CW*, Dec. 11, '54, p. 76) at Linden, N. J.

The company has been evaluating the effect of gamma rays on petroleum, chemicals and polymers, reveals that gasoline and new lubricating oil additives have been produced by radiation. Although commercialization is believed to be years away, Esso says progress has reached the patent-applied-for stage.

Pilot-plant tests reportedly show gasoline can be produced by radiation under milder conditions than those of conventional processes.

Studies also indicate that gamma radiation accelerates the reaction, gives higher yields than present cracking processes, requires less heat. Possibility: if gamma radiation proves out, the need of costly heating equipment would be minimized.

With an eye toward improved lubricating oils, Esso reports it has used gamma rays to produce new lube oil additives. Example: butyl rubber was broken down by irradiation, the degradation products examined as potential oil additives. Company scientists say that as yet none of the new compounds have been fully evaluated.

Esso's gamma-ray source is a cobalt pipe made radioactive by a 2½-year-

long neutron bombardment (at Brookhaven National Laboratory). Installed last June, the pipe is said to be the most radioactive object (3,100 curies) in use by industry.

James F. Black, who heads the laboratory, emphasizes that the radiation venture is still in the exploratory stage; no one's certain what will be discovered. But experiments thus far are breeding optimism among Esso researchers that gamma radiation will someday have a place in petroleum processing.

Iodine Unmasked

A group of Rutgers University professors are sweeping aside some long-held conceptions about antiseptic iodine.

They now find that only one form of iodine—the diatomic—is an effective germ killer. Moreover, unlike conventional iodine antiseptics, solutions of diatomic iodine are “stingless” and noncorrosive when used on wounds.

The researchers, chemist Benjamin Carroll and biologists Michael Iannarone, John Keosian and Irving Steinman, report that as low as 0.03% of diatomic iodine is germicidally effective and does not harm skin tissue. Iannarone has tested a mouthwash of

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oil and grease. They are decorative as well as functional.

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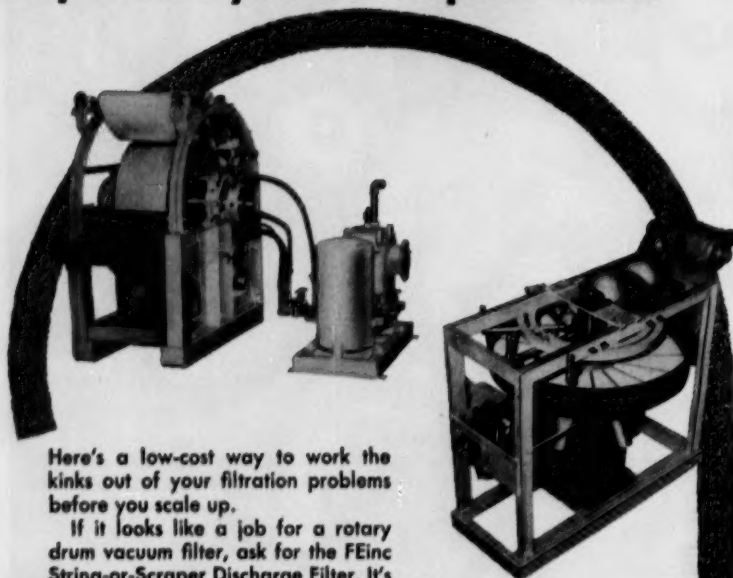


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RESEARCH

diatomic iodine, reports a 99.8% kill of oral bacteria. Feature: diatomic iodine is said to kill a broad spectrum of germs.

According to Iannarone, diatomic iodine would make an effective emergency cold sterilizant, not only for needles and other medical equipment but also for water. In the works: a home variety of diatomic iodine that will cleanse scratches without burning.

Growth Controls: A series of amino acid derivatives of 2-methyl-4-chlorophenyl acetic acids, recently evaluated at the U.S. Dept. of Agriculture's Philadelphia, Pa., laboratories, were shown to have a growth-modifying influence on bean, sunflower, cucumber, barley and corn plants.

Germicides: In studies of water-soluble bacteriostatic furans, Japanese researchers at Kyoto University recently prepared 5-nitro-2-furansulfonamide, found it to have high activity against *Staphylococcus aureus* and *Eberthella typhus*.

Amino Acids: A kit of 17 dinitrophenol (DNP) amino acids is newly available from Mann Research Laboratories (New York). Chromatographically pure, the compounds are supplied in vials of 100 mg. Price (kit No. 418): \$85.

Toxicant Hopfuls: Several of 69 N-substituted acetamides recently evaluated by S. I. Gertler and A. P. Yerington at USDA's Entomology Research Branch (Anaheim, Calif.) are reported to be effective mite killers. Prepared by reacting various amines with acetic acid or acetic anhydride, the compounds were tested against army worm, celery leaf tier, large milkweed bug, pea aphid, and citrus red mite. Best: N,N-diethylacetamide, which showed 87% kill of mites at concentrations as low as 0.0025% in acetone. N,N-dibutylacetamide and N,N-dipentylacetamide were found to be effective against four of the five test species.

Antiknock Appraisal: Ethyl Corp. (Detroit) researchers R. V. Kerley and K. W. Thurston report a new method of predicting the antiknock performance of gasoline. The technique comprises measurement of engine severity (the way a given engine

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Trisodium Phosphate
Tetrasodium Pyrophosphate
Sodium Tripolyphosphate
Sodium Metasilicate
Ferrophosphorus
Slag
Dimethyl hydrogen phosphite
Diethyl hydrogen phosphite
Dibutyl hydrogen phosphite
Bis(2-ethylhexyl)
hydrogen phosphite
Trimethyl phosphite†
Triethyl phosphite†
Triisopropyl phosphite†
Tributyl phosphite†
Trihexyl phosphite†
Triisooctyl phosphite†
Tris(2-ethylhexyl) phosphite†
Tris(2-chloroethyl) phosphite
2-ethylhexyl
octylphenyl phosphite
Tricresyl phosphite
Diethyl ethylphosphonate
Dibutyl butylphosphonate
Bis(2-ethylhexyl)
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RESEARCH

appreciates or depreciates rated fuel antiknock quality) by standard single-cylinder laboratory test engines. According to Kerley and Thurston, engine severity graphs obtained in this way are useful in predicting the road behavior of commercial fuels, and in analyzing the effects of changes in engine design and operating variables (e.g., spark advance, compression ratio, engine speed, and density of the fuel-air mixture).

Analgesic Entries: Research at Zurich's Technische Hochschule has turned up a series of new N-alkylated pyrazoles that reportedly show marked analgesic and spasmolytic properties. Activity is said to increase at higher molecular weights.

DDT Variants: Compounds related to 2,2,2-trichloro-1-arylethanol (synthetic precursors of DDT-type compounds) show insecticidal and acaricidal (mite killing) activity, report workers at the University of California's Citrus Experiment Station. Of a series of compounds containing a single *p*-chlorophenyl group, 2,2,2-trichloro-1-*p*-(chlorophenyl)-ethanol was found to be most effective. Aliphatic esters of the compound, varying in chain length and isomerism, were also prepared. Against the confused flour beetle, the *n*-butyrate derivative was most active.

Penicillin Patent: U.S. Pat. 2,723,938, newly issued to Bristol Laboratories, Inc.'s Frank Buckwalter and Murray Kaplan, covers the use of sodium phytate as a suspending agent for aqueous penicillin formulations. The salt, according to Bristol, made possible the first ready-mixed aqueous suspensions of penicillin for oral administration.

Foreign Patents: British Pat. 739,820 was recently awarded to Rohm & Haas for 1,8-diisocyanato-*p*-menthane production (by heating a carbamate in the presence of a basic catalyst).

Dow has just received British Pat. 739,650 on stabilized acrylonitrile polymers. Claims: light- and heat-stability in a polymer containing more than 60% acrylonitrile and 1/20% 1-dimethylaminoethanol; 2-(2-dimethylaminoethoxy)-ethanol; 1-dimethylamino-2-propanol; 3-dimethylamino-1,2-propanediol; or 1,3-*bis* (dimethylamino)-2-propanol.

Rare Earths by Ion Exchange

*a new system which produces "rare" rare earths
in purities up to 99.99% for research and industrial use*

a report by LINDSAY

TALK about excitement! Here at Lindsay we're as thrilled as a kid with a new toy—our new ion exchange unit is a big success and already the talk of the industry.

What's it all about? Well, the "rare" rare earths, as you know, are so identical in their atomic structure that separation by the common fractional crystallization method is impractical for most of them. Yet there has been an increasing number of inquiries from scientists throughout the country for the salts of some of these rare earths in quantities and purities not available commercially.

Fortunately, two gifted gentlemen, Drs. Spedding and Powell of the Ames Institute for Atomic Research, had developed a process for the separation of rare earths by ion exchange. Their pilot plant work demonstrated that highly pure rare earth salts could be produced in commercial quantities.

So this was the solution to our problem! In August we installed a battery of ion exchange columns in our West Chicago plant. The results were spectacular. We have successfully separated commercial quantities of these highly gregarious elements: samarium, europium, gadolinium, terbium, dysprosium, erbium, thulium, ytterbium, yttrium, lutetium and holmium.

Our first ion exchange unit has been operating at capacity since the installation, and we are now adding a second unit.

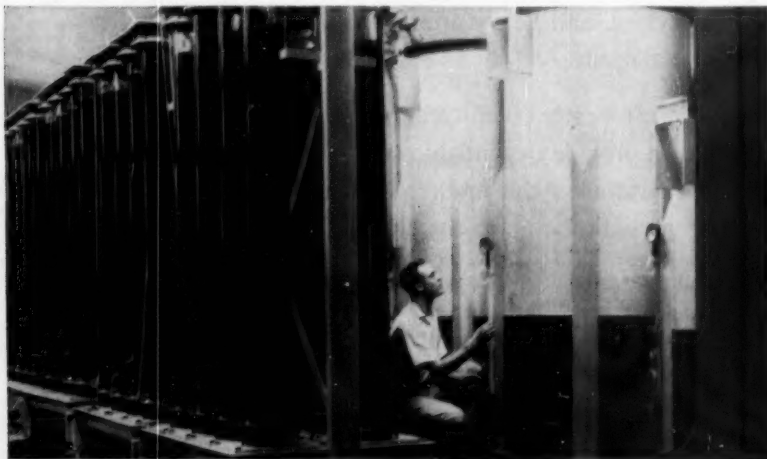
Lindsay's ion exchange process works like this. Monazite ore tailings are dissolved in nitric acid and are then treated with oxalic acid to remove impurities. The rare earths are precipitated out as oxalates which are ignited to trivalent oxides. These oxides, dissolved in hydrochloric acid, become a "charge" for the ion exchange column which contains a bed of synthetic resin

(sulfonated styrene-divinylbenzene copolymer). Positive ions on the active points of the resin are exchanged for ionized rare earth atoms which are held by the resin and become concentrated near the top of the column.

Separation occurs through elution with an ammonium salt of ethylenediaminetetracetic acid. The least strongly held rare earth is released first and emerges alone at the bottom of the column completely separated from the others and in highly pure form. It is followed by the next strongly held and so on.

We are proud of this addition to our production facilities which marks a milestone of progress for us, for science, and for industry. We feel sure that these highly pure rare earths, now available from our ion exchange production will have significant effect on the improvement of many industrial processes and the advancement of scientific knowledge.

If you are interested in any of these elements for research or industrial use, we suggest that you tell us of your requirements. In the meantime, we are continuing our regular production of other rare earth and thorium chemicals.



Portion of Lindsay's Ion Exchange Plant

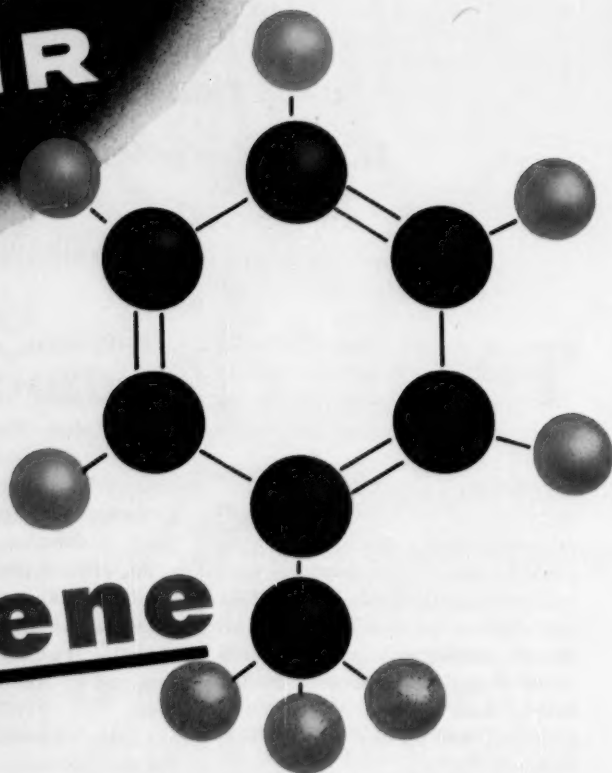


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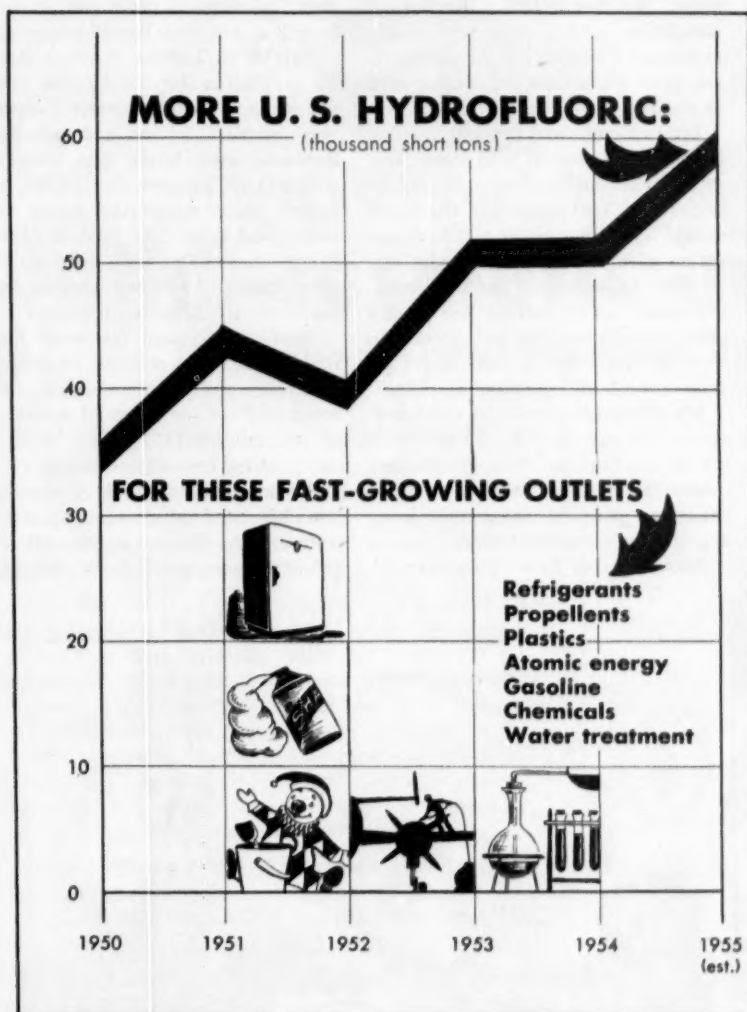
Sinclair's newest chemical unit, recently completed at Marcus Hook, Pa., has been especially designed to provide dependable supplies of aromatic chemicals for industry. The operation of this modern Sinclair unit marks another step forward in Sinclair's progress in the petro-chemical field.

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MARKETS



HF: Hot Field for Marketers

A growing demand for fluorine chemicals is etching a bright future for hydrofluoric acid. Last week, for example, the healthy tenor of one major outlet, refrigerants, was underlined at the Air Conditioning and Refrigeration Institute's meeting in Atlantic City. Too, Pennsalt's just-announced plan to market chlorofluorohydrocarbon refrigerants and aerosol propellents adds further significance to the industry appraisal.

These events highlight the more general expansion of fluorine consumption that has already pushed annual U.S. hydrofluoric production

from 35,646 short tons in 1950 to almost double that amount, some 60,000 tons, this year. Fully a third of the five-year growth results from '55's 8,000-ton surge above last year's 51,910 tons.

Now There Are Three: Until now, only two producers have been making those fluorinated hydrocarbons that have become so important as aerosol propellents and refrigerants, viz., Du Pont (Freons) and General Chemical (Genetrons); but late in '56, Pennsalt will begin marketing its Isotrons, a similar line of products.

Some 40% of the total fluorinated

hydrocarbon market has been gulped by aerosols during the past decade, and the over-all vigorous growth of this fluorine outlet will continue for at least the next five years.

One industry survey now places the probable output, by 1960, at 450 to 600 million units. Compare this with last year's 185 million aerosol units, which represented an increase of 45 million over the preceding year.

The fast-climbing sales curve for aerosol insecticides and room deodorants will probably level off; there will be more growth, of course, but not at the fantastic rate of previous years. But other products—e.g., shave creams, hair lacquers, drugs, cosmetics—will be moving at an accelerated clip. An added new use for fluorine-type propellents may be in foods, especially icings and condiments.


Mechanical air conditioning of homes—the other major application of fluorinated hydrocarbons—also has plenty of room for growth. A just-released Du Pont market survey reveals an unexpectedly minor penetration of the potential total market. Of an estimated 45 million U.S. prospects, only 4.3% own a room air conditioner; 6.4% use other means of temperature and humidity control.

Driving Demand: In the next few years, say auto makers, air conditioning in cars will be as commonplace as today's automatic transmission. If this prediction proves correct, consumption of fluorinated hydrocarbon refrigerants will be in for a big boost, and, of course, so will HF use.

Detroit observers are now convinced that the comfort-seeking car buyer will happily accept air conditioning in his new car. And it's a well-supported opinion. In 1954, about 57,500 cars had air conditioning; this year the tally is close to 177,000 units.

Such response cannot be ignored, and the planning of American Motors Corp. (Nash, Hudson, Nash Rambler) is indicative of what's ahead for the entire industry. The firm has already allocated air conditioning to 40% of its '56 cars, and to 60% of its '57's.

Until now, car prices and sales localities have largely determined the extent of air-conditioning installation. For example, virtually every '55 Cadillac sold in the southern half of



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American Cancer Society

MARKETS

the country had air conditioning (20% of all '55 Cadillacs had such equipment). But the effect of locality on installation rate is now rapidly disappearing; Cadillacs for sale in Northern states will soon sport cooling units as standard equipment.

Ford's Continental Mark II, another luxury car, started off with about 50% of the production units air-conditioned; but spokesmen say the figure should have been set at 100%, hence earlier plans have been altered.

In the under-\$4,000 car class, manufacturers aren't talking too loudly about future plans, but indications are that air conditioning will figure in sales appeal of upcoming models.

It's still early to make accurate estimates; but mention 500-750 thousand car air-conditioning units in '56 with double that amount for '57, and you get smiles and affirmative nods from auto industry representatives.

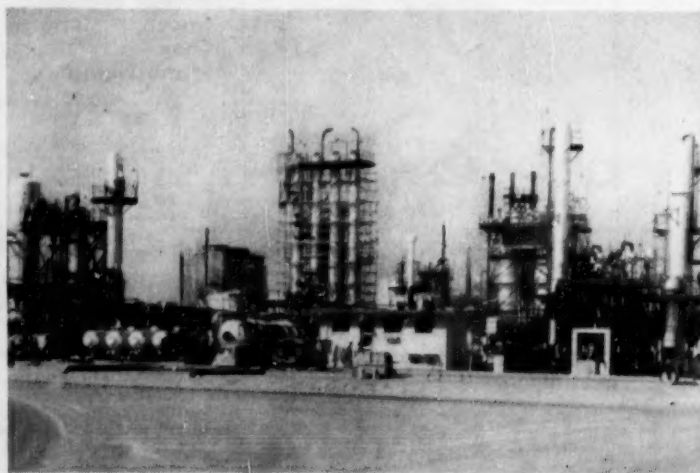
Assuming that these "guesstimates"

are correct, and that 4 to 6 lbs. of refrigerant will be needed for each unit, the chemical needs add up to at least 2 to 3 million lbs. of refrigerant.

Dribble to Torrent: Another steadily growing outlet for fluorine compounds is, of course, water fluoridation. In the U.S., just a decade ago, fluoride-treated water was used by only 209,000 persons. During '54, 4.5 million more consumers joined the ranks, and today the total is nearer 21.1 million. (This tally does not include another 3.5 million persons who use naturally fluoridated water.)

Thus, the demand for water fluorides has already reached 20 million lbs./year, and this represents only about 18% of the potential market if all the nation's 115 million users of public water convert to fluoride.

Further, add to the U.S. demand Canada's need of fluoridating compounds; the Dominion imports its fluorides from the U.S. By the end



Isophthalic Start-up

THIS MONTH—if not this week—Standard Oil (Calif.) will be turning valves in its new \$10-million isophthalic plant at Richmond, Calif. (*see cut*). Output, slated to hit some 50 million lbs./year eventually, will be marketed by Standard subsidiary, Oronite Chemical.

Underscoring the competitive aspect of the onstreaming: the material will be priced at 23¢/lb. (c.i.

or truckload), f.o.b. the Richmond plant, but freight-equalized with the nearest phthalic anhydride producing point—a tag well within bucking range of the latter's current 20¢/lb. schedule.

And sales of isophthalic will kick off with a bang; bulk of initial production, says the company, is already committed on c.i. shipments.



How "Dutch Boy" Chemicals help the cosmetic industry make its products more appealing

Repeat cosmetic sales depend largely on formulation.

Think what hard settling of suspended solids would do to a liquid make-up, for example . . . or phase separation to a hand lotion or cold cream. National Lead Company has done a great deal of thinking about this kind of problem.

And the result of this thinking, this research, is Ben-A-Gel*. Ben-A-Gel is a new Dutch Boy wonder gellant that does amazing things for water (or oil-and-water) dispersions, emulsions, suspensions and mixtures. By its unusual thickening action it gives lotions, creams, and shampoos a truly luxurious "feel." It prevents hard settling, stabilizes emulsions, reduces heat thinning or separation. And because it's inorganic, not subject to micro-biological degradation, it helps keep products sweet and fresh.

*Bentone** 34, another Dutch Boy Gelling Agent, does equally beneficial things for lipsticks, cold creams, make-up bases and other water-in-oil emulsion products . . . improving body, providing temperature independence.

Well worth looking into! Maybe you'd like to explore the effects of Dutch Boy Gelling Agents in cosmetics, pharmaceuticals, paints, insecticides, cleaners, greases, adhesives, and other organic systems. Even ceramics.

Or perhaps you would like to know more about National Lead's newest developments in vinyl stabilizers . . . or Dutch Boy's new double-duty plasticizers that give a unique combination of low volatility and low temperature flexibility. Just fill out the coupon.

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MARKETS

of '54, some 198,000 Canadians were drinking treated water, but now the city of Toronto plans to fluoridate its water, will add 2 million more to the fluoride-consuming public.

Sodium fluoride, the first material used for fluoridation, held sway over the market for the first eight years until silicofluorides took the lead. The former, although more desirable from the point of view of solubility, has been losing out to silicofluorides because of its relatively high price.

Today, demand for silicofluorides continues high; but some shortages persist.

Fluosilicic acid, too, is entering the picture (viz., in Washington and Baltimore). But since the acid is distributed as a water solution (hence high transportation costs), its use will probably be limited to areas near the sources. Any switchover from solid fluorides to the acid, by present water-treating units, will also entail equipment changes; e.g., installation of rubber-lined tanks and gravity-flow feed lines. Nonetheless, the acid's low price will undoubtedly make it attractive to many communities.

As pointed out before (CW, Nov. 19 p. 119), the future of sodium fluoride—hence HF—in some cases will be closely related to by-product fluorine compounds derived from phosphate rock. But with more than 80% of the ultimate demand open to competing materials, the final balance of fluoride and silicofluoride use in water treatment is still speculative.

. . . And Many More: These top-bracket applications of fluorine compounds do not, of course, exhaust the present and potential outlets for fluorine. Take these, for instance:

- Fluorocarbon plastics (Bakelite's Fluorothenes, Du Pont's Teflons, and Kellogg's Kel-F).

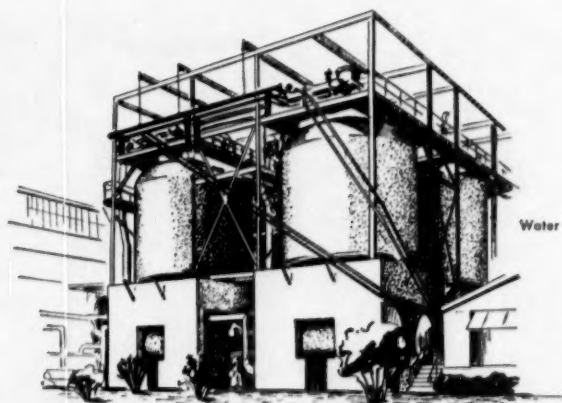
- High-octane aviation fuel (requires HF for catalysis).

- Synthetic cryolite and aluminum fluoride production.

- Atomic energy uses; e.g., in uranium processing.

Still other applications of fluorine chemicals are to be found in the development of dielectric materials, fire extinguishers, lubricants, hydraulic fluids, synthetic rubbers, pharmaceuticals, ceramics, metal fluxes, and agricultural products.

Taken all together, it adds up to busier times ahead for HF producers.



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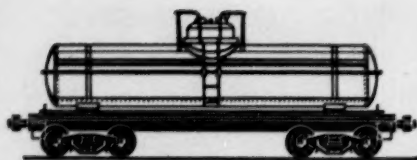
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MARKETS

Synthetics Cut Deeper

Few will disagree that chemically made fibers have cut into markets once exclusively served by natural materials such as wool and cotton. That the encroachment of synthetics continues—and will undoubtedly become even more pronounced—is clearly underscored in U. S. Dept. of Agriculture's 1956 outlook issue of *The Cotton Situation*.

For example, the report points out that during the 1955-56 cotton marketing year, man-made fiber consumption will probably be close to 10% greater than in 1954-55, compared with an increase of about 4.5% for cotton.

Use of all types of man-made fibers in 1955 is slated to be greater than during last year, with one exception—acetate staple. Its consumption will probably fall off slightly. Increase among noncellulosics will likely amount to more than 25%; high-tenacity rayon yarn, over 25%; and rayon staple fiber, more than 35%.

Regular-tenacity rayon and acetate filament yarns will probably show somewhat smaller increases than high-tenacity rayon yarns and staple. The increases: about 15% and 10%.

Biggest gain in man-made fiber use, as noted, appears to be in rayon staple fiber—and price is an important factor. (Since the early '40s, comparable cotton prices have been higher than those for rayon staple.)

Second best increase in rayon consumption is in high-tenacity. This type of rayon is used in industrial items, such as belting, hoses and tires. Rayon, in recent years, has just about pushed cotton completely out of the tire cord market.

As recently as '46, cotton tire cord and fabrics accounted for about 59% of all tire cord produced in the U.S. Last year, the percentage was nearer 15%; but production of cotton tire cord and fabric is currently so small that U.S. figures are not published.

On the other hand, production of rayon tire cord and fabric jumped from 41% of the total of such items in '46 to approximately 78% in '54.

Rayon tire cord is substantially less expensive than the cotton cord, says USDA, since it takes less than a pound of super-high-tenacity to replace a pound of cotton in tire cord. Such differentials in cost make it likely that the former will continue to be used instead of cotton in industrial outlets.





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A careful review of the properties of these chemicals may suggest an answer to one of your product or processing problems. Address your correspondence directly to Frank Wedge, ANSUL CHEMICAL COMPANY, Dept. C-12, Industrial Chemicals Division, Marinette, Wisconsin.

PROPERTIES	ANSUL ETHER-D.M.B. 1,4 Dimethoxy Benzene (Hydroquinone dimethyl ether)		ANSUL ETHER-H.A. Hydroxy Anisole (Hydroquinone monomethyl ether)	
Molecular weight	138.16		124.1	
Melting point	56.3°C.		52.5°C.	
Boiling point	213.0°C. @ 760 mm Hg.		246.0°C. @ 760 mm Hg.	
Density, g/l.	1.038 @ 55/55°C.		1.55 @ 20/20°C.	
Solubility	@ 25°C. in grams/100 grams of solvent		@ 25°C. in grams/100 grams of solvent	
in water	insoluble		4.1	
in benzene	177.0		69.5	
in acetone	233.0		426.0	
in ethanol	33.3		456.0	
in ethyl acetate	150.0		245.0	
Color and form	white to colorless flakes		colorless, waxy flakes	
Odor	pleasant (sweet clover)		characteristic	



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**CHEMICAL WEEK
DECEMBER 10, 1955**

Alcohols and other chemical solvents continue to lengthen the list of items heading for higher price levels, with Jan. 1 as the most frequent impending pivot point.

Shadow-close to last week's (and now generally posted) ethyl alcohol price rise announcements comes word that several solvents—including butyl alcohol, butyl and ethyl acetate, methyl ethyl ketone, and isopropyl acetate—will be advanced $\frac{1}{2}$ ¢/lb. next month.

Add, too, a like hike on isobutyl alcohol and isobutyl acetate. Tank-car tag on the former will go up to $12\frac{1}{2}$ ¢/lb.; on the latter, to $11\frac{3}{4}$ ¢. Both, as with the other increases, become effective on Jan. 1.

Not unexpected, either, in light of the ethanol advance, is the upcoming 2¢/gal. increase on isopropyl alcohol. The revision, first since early '54's $2\frac{1}{2}$ ¢-3¢/gal. slash, will bring price back up to 37¢/gal. (91%, tanks).

Thus far, only Enjay—the firm, incidentally, that initiated last year's drop—has notified its customers of the forthcoming increase. Before the week's out, though, just about all isopropyl consumers will get the pre-New Year greeting.

Reason behind the eruption of lacquer solvent and alcohol price jumps may sound like a well-flogged plaint, but producers insist it's apt—profit margins have been sliced too thin for too long because of steadily rising costs of manufacturing, shipping, and refining.

The same lament is being aired this week by at least one major producer of fine chemicals—and chances are that others are making ready to join the chorus.

Following the initial sentence, "Reflecting general increased manufacturing costs," Pfizer is apprising customers that, effective immediately, prices of citric acid, tartaric acid, some gluconic derivatives, and several citric and tartaric acid salts will be higher.

Run-down on the upping: citric acid increases (first since June '53): hydrous 1¢, anhydrous $1\frac{1}{4}$ ¢/lb. On the citrates, 1¢-4¢/lb. Tartaric acid moves up 3¢/lb., and its salts from 2¢ to 5¢/lb.

The gluconates, including glucono-delta-lactone and ammonium, calcium, copper, ferrous, magnesium, and manganous salts, are being increased from 1¢ to as much as 18¢/lb., depending on type and quantity.

Some, but not all, barbiturate makers know now that they'll be paying more for one of their raw materials, dimethyl malonate, from Jan. 1. One major producer made known this week that its drum-lot price will be increased then by 3¢/lb.

Others in the field are "evaluating" the action, may be ready with a similar revision. If so, the industry standard for such quantities will be 80¢/lb.

Formaldehyde users within a 300-mile radius of Danville, Pa., will now have an additional source of supply; Merck is activating its Cherokee plant at that location. (The company operated the facilities during the Korean war, but output then—chiefly hexamine—filtered into military outlets.)

Decision to plunge into open marketing of formaldehyde (and hexamine for resins) has been pondered for months; Merck's reason for doing so now hinges

Market Newsletter

(Continued)

on its belief that the country's biggest market, centering around Danville, will need more.

How much more? The installations will add some 400 million lbs. to U.S. formaldehyde capacity, but trade followers believe that Merck's production will not exceed a 50-60 million lb./year rate, at least during the first few months of the new year.

Few market analysts will deny that an ammonia surfeit in the U.S. is more than a year or two away. Within that time, for instance, several new major ammonia plants in the West (U.S. Steel at Salt Lake, Standard of Calif. at San Francisco, Phillips Pacific at Pasco, among others) are scheduled to be turning out the material at a market-gorging rate.

Obvious poser for producers: where to find new outlets? One such ammonia maker, Brea Chemicals, is looking southward for an answer. Company's president, Homer Reed, is off on an extended tour of West Coast and South America. Object: to build aqua ammonia sales from a dribble in '56 to significant tonnage by '57.

Scale-weighting advantage for Brea: using parent-company Union Oil's fleet of tankers—now shuttling between California and South America—to haul ammonia to new-found customers.

Another synthetic fiber has reached the commercial production stage, but Celanese's new Fortisan-36 (a saponified acetate) will be aimed toward heavy industry rather than apparel outlets.

Market evaluation by potential customers has the company's hopes high that the strong fiber will do well in V-belts, power transmission belting, high-pressure hose, conveyor belts, truck tires, plastic laminates, etc.

Sales are already being made from the Rome, Ga., plant, but full-scale output (3-4 million lbs./year) won't be hit until all equipment is in place sometime later in the new year.

New commercial-scale facilities for the production of tertiary-butylamine are just about completed. The unit at Monsanto's Texas City, Tex., site is designed for flexibility, will turn out a variety of alkyl amines.

The tertiary-butylamine is expected to swing into production sometime next month.

SELECTED CHEMICAL MARKET PRICE CHANGES

Week Ending December 5, 1955

	Change	New Price
UP		
Ammonium citrate, dibasic, bbls.	\$ 0.02	\$ 0.77
Calcium gluconate, AA, bbls., dms.	0.04	0.74
Citric acid, USP, anhyd., gran., dms., c.l.	0.0125	0.295
Ferric-ammonium citrate, brown, NF, gran., dms.	0.04	0.60
Rochelle salt, NF, gran., powd., dms., c.l.	0.05	0.415
Sodium citrate, NF, VIII, gran., dms.	0.015	0.275
Tartar, emetic, tech., powd., dms.	0.05	0.655

All prices per pound unless quantity is stated.

Spencer Service is Wonderful



"Well, Professor, one thing we can be sure of... even Tanky hasn't been here!"

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The largest selling brand of Ammonium Nitrate in the Midwest, Spencer "Mr. N" Ammonium Nitrate is prilled and packed in polyethylene-lined bags for 100% dryness. 33.5% Nitrogen. For fast delivery contact your Spencer office.



America's Growing Name In Chemicals

SPENCER PRODUCTS: "Poly-Eth" Polyethylene • Ammonia (Commercial and Refrigeration Grade) • Aqua Ammonia • 83% Ammonium Nitrate Solution • Synthetic Methanol • Formaldehyde • Hexamine • "Mr. N" Ammonium Nitrate Fertilizer • SPENSOL (Spencer Nitrogen Solutions) • FREZALL (Spencer Dry Ice) • Cylinder Ammonia

SPENCER CHEMICAL COMPANY

GENERAL OFFICES: Dwight Bldg., Kansas City, Mo. DISTRICT SALES OFFICES: 500 Fifth Avenue, New York City; First National Bank Bldg., Chicago, Ill.; Candler Bldg., Atlanta, Ga.; Union Planters National Bank Bldg., Memphis, Tenn.

Trubek Laboratories Acquire Truland Chemical Company

The Trubek Laboratories, Inc. of East Rutherford, N. J., have announced the acquisition of Truland Chemical Company. Dr. Edward Trueger and Dr. Daniel Friedland, the founders of Truland will be retained as Vice Presidents of Truland Chemical Company and there will be no change in operating personnel.

For approximately ten years Truland has been engaged in a large scale recovery program for a wide variety of organic by-products, wastes and residues for many of the largest companies in the country. This service will be continued on a toll basis or on an outright purchase of the starting by-product. Greater emphasis will be placed on the outright purchase of the by-product.

A new plant site has been planned for Truland which will be on part of the acreage at the Trubek location.

Truland now employs a wide range of distilling equipment, including high temperature vacuum stills, continuous as well as batch type. Coupled with the extremely varied line of chemical equipment available from the parent company, the facilities and experience of Truland may be employed for the economical upgrading and disposal of organic wastes and by-products derived from the chemical processing, manufacturing and allied industries.

Continuing the expansion program, Trubek has just acquired 108 acres in Hunterdon County, N. J., for a future research center.

Solvent Recovery...

rendered on a toll basis or on an outright purchase of the starting by-product.

The facilities and experience of Truland may be employed advantageously for the economical upgrading and disposal of organic wastes and by-products.

Our technically trained personnel are available to discuss the refining of any organic waste or by-product.

Send . . . for new booklet

which describes our
operation in detail—



Division of THE TRUBEK LABORATORIES Incorporated



I ntermediates

ACETALDEHYDE AMMONIA
ACETOPHENONE
ACETYL CHLORIDE
ANISIC ALDENHYDE
ANISYL CHLORIDE
BENZAL ACETOPHENONE
BENZHYDROL
BENZHYDRYLAMINE
BENZHYDRYL CHLORIDE
BENZOPHENONE TECH.
BENZYL ALCOHOL TECH.
BENZYL CYANIDE
n-CAPROIC ACID
CAPRYLOYL CHLORIDE
p-CHLORBENZHYDRYL CHLORIDE
DIBENZYL ETHER
DICYCLOHEXYL CARBINOL
DICYCLOHEXYL KETONE
p, p'-DIMETHOXYBENZOPHENONE
DIPHENYL ACETONE (unsym)
DIPHENYL METHANE
ETHYL FORMATE
ETHYL MALONIC ESTER
ETHYL PHENYLACETATE
beta IONONE
ISOVALERIC ACID
LAUROYL CHLORIDE
METHYLHEPTENONE
METHYL PHENYLACETATE
PALMITOYL CHLORIDE
PHENYLACETAMIDE
PHENYLACETIC ACID
PHENYLACETONE
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PHENYL PROPYL ALCOHOL
PHENYL PROPYL CHLORIDE
POTASSIUM PHENYLACETATE
PROPIONYL CHLORIDE
PROIOPHENONE
SODIUM PHENYLACETATE
n-VALERIC ACID

And Other Intermediates

The listed intermediates reflect over twenty years of experience in the development and production of organic chemicals. You will be pleased by our uniform, controlled quality and dependable deliveries.

We also invite your inquiries for commercial quantities of other fine organics. Among them, too, may be some you have been making for your own use but would prefer to buy, if you can do so with confidence. An energetic, resourceful research, engineering and production team welcomes the opportunity to work with you.

INTERMEDIATES DIVISION

The TRUBEK LABORATORIES Inc.

Established 1932

EAST RUTHERFORD

NEW JERSEY

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Easier, safer loading and unloading



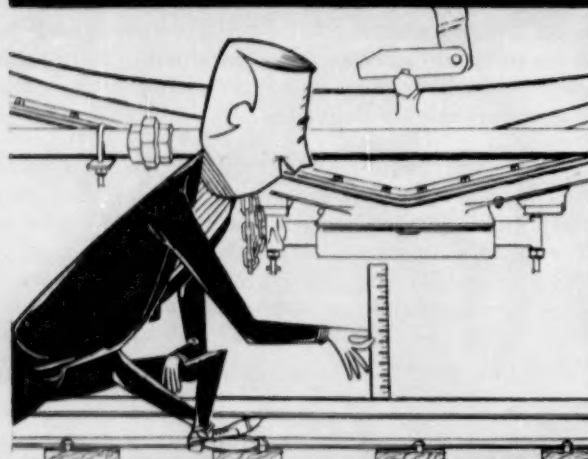
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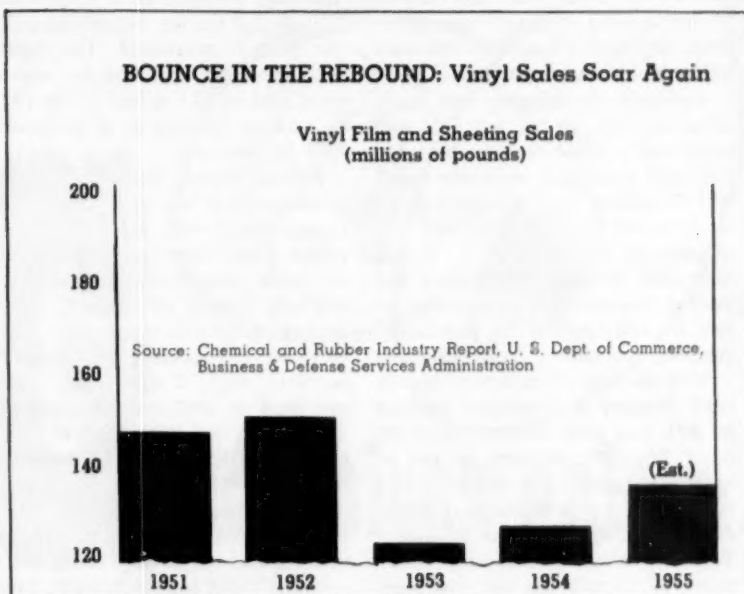


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AIRSLIDE CARS—now successfully shipping flour, semolina, sugar, starch, plastics, chemicals and other products.

BOUNCE IN THE REBOUND: Vinyl Sales Soar Again



Vinyl Finds Its Sales Key

At the mercy of corner-cutters and skidding badly only two years ago, vinyl film sales are now roaring upward.

Improved quality, standards, let-the-world-know merchandising, and new applications share honors for vinyl's resurgence.

Now homeward bound from a two-day meeting of the vinyl film section of the Society of the Plastics Industry in New York this week, men of the industry are fondling many a heartening fact. Foremost, of course, is the zooming sales comeback being staged by vinyl film. Just as cheering, however, is the promise the future holds.

SPI is hustling along end-product standards for vinyl wares, is stepping up its vinyl promotion with added means of approach (television, movies, farm campaigns). And, new applications (many still secret) are pointing to yet-unreached sales altitudes.

The sales figures alone would be good enough news. The first half of 1955 is 28.3% ahead of 1954; textile, paper treating and coating uses are up 21.1%; and protective coatings are more than 32% over last year's level. Compared with vinyl film's and sheeting's worst year, 1953 (see graph), sales this year may run to 137 million

lbs.—a substantial 11% increase.

To keep the sales curve on its now-upward track, individual firms and the SPI will spare no effort next year:

- Rainware, closet accessories, inflatables, and shower-curtain subcommittees of the Society's End-Products Standard Committee will hold meetings with fabricators to gather suggestions for standards. Data on product tests will be collected from individual companies and private research firms, and efforts will be made to fill any gaps. Three subcommittees are already well along; the fourth is just getting under way.

- Promotion—lots of it—will be aimed more at the consumer. Previous efforts (which accomplished their purpose) were slanted at retailers, fabricators, and processors.

A five-minute color newsreel on the vinyl film standard of quality is being booked into free TV time (CW, Nov. 19, p. 102) all over the U.S., and is

offered for showing to schools, consumer groups, etc. Special material is in the works for 84,000 4-H clubs, 5 million home-economics students in 25,000 high schools, and 4,500 state and county home demonstrators. The Dept. of Agriculture may put out vinyl film bulletins to a 32-million audience. And, there'll be lots of articles in consumer media. In all promotion, the film as well as the seal of quality will be stressed.

Industry promotion isn't being ignored, however. A longer version of the consumer movie will be beamed to retailers and fabricators, and many parts of the current activities, such as retailer forums, will be carried on.

- New sales-bearing applications, too, are being carefully nurtured by individual companies. In particular: laminations, pressure-stick veneers for materials never previously veneered with vinyls (like linoleum, building bricks). Recently introduced vinyl pressure-stick wall coverings, swimming pool applications, crop covers for farms—among others—are expected to grow handsomely.

Impressive as its comeback is, vinyl is writing something more than mere statistics for portly tomes. It's also writing vivid chapters in the annals of chemical selling. Their titles: the importance of product quality, promotion, new applications to sales. Together, they've brought vinyl back.

Tailspin: Following the Korean War peak of 214 million lbs. in 1950, sales of film and sheeting readjusted to about a 150-million-lb. level in 1951 and 1952. But trouble was brewing. Fly-by-nighters, lured by the ease with which vinyls could be adulterated, and by the fast dollar such practice offered, began muscling in. Vinyl, still a relatively new material, posed know-how problems to even the legitimate processor and fabricator.

In a short time, the market was inundated with materials formulated with cheap (and highly volatile) plasticizers and hefty percentages of cheap fillers. Consumer reaction came soon.

By 1953, film and sheeting sales had dropped off to 123.5 million lbs. One leading mail-order house suffered a 70% drop in vinyl sales. Furniture retailers reeled under a 35% return on vinyl-finished goods. Naturally, bad-name ruboff hurt high-quality

Tight specs key to top value in fatty alcohols

You can get any combination of saturated and unsaturated long-chain alcohols from the large variety of CACHALOT brand fatty alcohols. These cetyl, stearyl, and oleyl alcohols are available promptly in tonnage in NF, USP, and tech. grades.

Low acid, ester, and saponification values are an indication of the great care that goes into these aliphatic chemicals, product of over thirty years of basic production research in straight-chain alcohols.

Chem-men tell us they prefer CACHALOT alcohols in research work because of the high degree of lot-to-lot uniformity. The same tight specifications help production men control quality of end-products.

(If you'd like to receive the "Survey of Fatty Alcohols," write Michel today.)

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30 Broad Street, New York 4

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DISTRIBUTION

producers, too. But quality troubles weren't all: textile prices had dropped (bringing some goods into competition with vinyl), and coated fabrics were replacing unsupported films.

Curiously, the industry had recognized as early as the late '40s that opportunists could rock the boat and had set a program to get a film standard of quality. But, disaster had already struck when the standard was adopted in the fall of 1953. It was clear that not only the standard was needed, but also a huge campaign to sell it—and quality—to processors, retailers, fabricators, and consumers.

With the help of an outside agency (Ralf Shockey & Associates) retained by SPI, and with separate efforts by many firms, the industry set out to recoup its sales. The standard was symbolized with a special seal, introduced at a special press luncheon. Technical salesmen offered processors improved formulations for vinyl films—formulations sometimes geared to specific products. Prime producers brought processors and fabricators into their labs, showed how vinyl films should be compounded and handled.

But most important in the drive's first phase, the retailer and the fabricator were resold on vinyl. Here's how it was done:

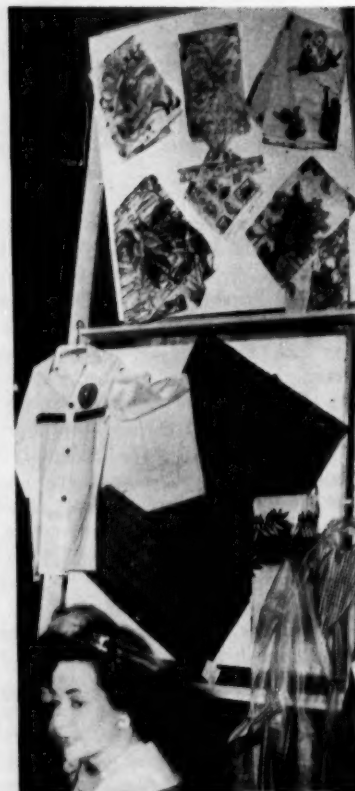
- At a meeting of the National Retail and Dry Goods Assn., the properties of "Seal" vinyl, the film, and the planned promotional campaign were explained.
- Two-day meetings were set up with major mail-order houses to explain the program, solicit support.
- Marketing specialists were hired to contact buyers, merchandise managers, and sales training executives in major stores and variety chains.
- A special kit, including a slide film, was developed to show at buying offices, meetings with retailers and fabricators. Promotional literature, direct mail, training booklets (on how to sell Seal vinyl) were all developed.
- Special group meetings were held for fabricators to merchandise the program to them, point out the advantages of high-grade vinyls.
- A vinyl film fashion show—replete with vinyl-clad models and displays of numerous vinyl products (see cut)—was staged for the press and fabricators. Results: stories in many newspapers and magazines; television and radio shows on vinyl film; in-

creased fabricator awareness that Seal-grade products led to nifty profits.

How well has the over-all campaign for quality succeeded? The figures tell the story: vinyl film has moved from sales of 64.1 million lbs. in 1953 to 69.9 in '54 and to an estimated 89.5 for this year.

Future Focus: Although quality, promotion and new applications have brought vinyl back, the job is by no means done. Some quarters feel that standards (now minimum) could be fruitfully hoisted still further. Competitive plastics—Mylar and polyethylene (in packaging, especially)—threaten vinyl. Fabricators, though interested in end-product standards, are not all yet convinced of their value. And there's need for extensive consumer education, as next year's program demonstrates.

It's a good bet, though, that an industry that can devise—and execute—such a rapid comeback won't have much trouble with future problems. Management knows what quality, what promotion, what new end-uses do to a sales curve.

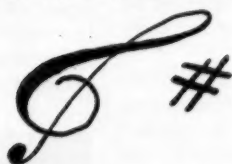


FASHION FAIR: The press came, saw, wrote—about quality vinyls.



but close harmony comes harder!

THERE'S LOTS of buying references that do adequate jobs covering solo segments of purchasing activity. The **BUYERS' GUIDE** of Chemical Week, however, is the one *complete* buying handbook covering all phases of information necessary for the purchase of both chemicals and process equipment. It's actually four major directories in one single volume . . . a quartet of services that solves buying problems quickly and profitably. Here's what these sections offer to you.



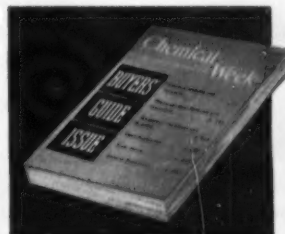
COMPANY CATALOG AND DIRECTORY: A comprehensive list of manufacturers and jobbers of both chemicals and equipment, complete with home offices, addresses and telephone numbers of district and sub offices. Company catalogs are interspersed throughout this section.

CHEMICAL DIRECTORY: Lists more than 5,300 chemicals, raw materials and specialties . . . with grades, uses, and types of packaging given under each product heading. Includes names and addresses of manufacturers and suppliers.



EQUIPMENT DIRECTORY: This section is comprised of over 2,300 items of equipment, containers or supplies commonly used in the Chemical Process Industries, complete with names and addresses of manufacturers and suppliers.

TRADE NAME DIRECTORY: Always one of the **GUIDE**'s most popular and useful features, the Trade Name Directory is the most thorough-going list of chemical trade and brand names ever published.



Buyers' Guide Issue of . . . **Chemical Week**

McGraw-Hill Publishing Company, 330 West 42nd Street, New York 36, New York



NEW TRANSPORTS: Bigger payloads, lower maintenance, plus . . .



SPEEDIER CLEANING with steam and hot

Trucker Turns to Aluminum

Growing demands of the scattering chemical industry for fast shipping are prompting new outlooks in trucking operations. Like other liquid carriers, E. Brooke Matlack, Inc. (Philadelphia) is tailoring to meet the demand. Its biggest step so far: November's \$1.1-million outlay for 103 Butler-made aluminum transports.

The purchase will multiply the

firm's solvent-carrying capacity nearly fourfold, will divert its 27 stainless steel trailers to carry more petrochemicals and caustics. Already among the top five of the nation's liquid carriers, with 600 transports, Matlack is protecting its position in serving 21 East, South and Midwest states.

For chemical shippers who fear the hazards of contamination, President Duverny Matlack explains, aluminum transports mean faster service. While cleaning old-style trailers requires from 8 to 24 hours, aluminum can be washed out mechanically in about an hour; moreover, cleaning is more thorough.

Design of the trailers and aluminum's corrosion-resistant, noncatalytic properties are the keys to speedier cleaning. Each compartment in the trailer is built with a special flush-out opening between the baffle plates into which a high-pressure spinner is inserted to spray a mixture of hot detergent and steam. The compartments are blown dry with heated and filtered air. Older cleaning methods often required a man to crawl in and clean the entire tank manually—a slow process.

Fast Movement: The aluminum tanks mean more payloads, lower maintenance, longer life and faster loading and unloading operations for the company, all of which are reflected in faster service to customers—a focal point of modern trucking sales pitches.

Aluminum transports are not the only basis of new service trends. In

today's chemical shipping, Matlack has learned, carriers must be alert for methods to ensure the safe cartage of some highly dangerous liquids whose flammability, sensitivity often require specialized transportation.

To provide mechanical safety, Matlack has installed complete maintenance and repair facilities at each of its 12 terminals (West Chester, Neville Island and East Earl, Pa.; Woodbridge, N. J.; Baltimore, Md.; Richmond, Va.; Dearborn and Alma, Mich.; and Findlay, Pataskala, Canton and Toledo, O.).

Typical of these shops is the one at West Chester. There the 130-ft. grease pit can accommodate two tractors with trailers, is equipped with high-pressure grease guns, air guns, electrical outlets, and vaporproof and



SAFETY: Fully equipped facilities provide continued check on transports.



KNOW-HOW: Chemical samples indicate loading sequences to be used.

DISTRIBUTION

E. Brooke Matlack, Jr., "From here on, we're aiming at a million-a-month business."

Streamlining for volume business often evolves numerous means to eliminate operational bottlenecks. Matlack numbers among these a teletype-writer system that permits all billing and records to be made at the Philadelphia headquarters. In addition, this system provides for centralized control, lets the home office keep up-to-the-minute dispositions on all trailers and crews to avoid "deadhead" return hauls.

Rolling into 21 states* and the District of Columbia presents its problems, according to the four brothers (the other two: Robert, vice-president; Ed, treasurer), who equally own the company.

And these problems keep operating people hopping, for a mistake can knock a trailer out of commission for several days. Vice-president Ed Taylor, who was responsible for sleuthing the how-to-handle-chemicals field, attacked a number of them. Included:

- Hard-to-clean residues and odors.
- Idle-time reactions.
- Effects of hot, cold weather.
- Cleaning compound, steam reactions.
- Effects of chemical sequence in loading.

Shippers can help, the firm points out, by providing more-adequate information concerning their chemicals. Frequently vaguely worded orders result in unnecessary delays and lengthy cleaning chores.

One of the biggest bugaboos to carriers and shippers alike is rust. Although the new Butler aluminum tanks, which are noncorrosive, will beat much of the problem, the situation still remains with the older trailers. When foreign material, such as pipe screens, nuts, bolts, appears at destination, the blame is usually heaped on the trucker's shoulders, despite the precautions of thorough cleaning and the fact that the material may have come from shipper's equipment.

In spite of the problems, however, Matlack is gearing for large-scale chemical cartage. Growth of the chemical industry has opened a swath of

*Alabama, Delaware, Georgia, Illinois, Indiana, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia, Wisconsin.



air, pay dividends at Matlack's 12 terminals.

explosionproof lights. Service is given each unit consistent with mileage since the last check.

Again aluminum is expected to play its part in economical safe haulage, for the metal is nontoxic, nonsparking and noncatalytic, allowing Matlack to handle many sensitive chemicals and oils with a minimum of oxidation, polymerization or decomposition.

Building Know-How: Service know-how is a big factor in building trucking business. When Matlack started out in the depression days, its 18 trailers were handmade affairs; now, its 600 units haul 300 different liquids more than 2 million miles/month. In 1947, Matlack grossed \$2,988,000; in Sept. '55, it grossed \$1 million, the first time monthly receipts have mounted that mark. Says Secretary



COMMUNICATION: Teletype aids billing, avoids "deadhead" return hauls.

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the March of Time

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Enjoy a New Vigor with

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- **Closing Date**—Each Wednesday, 10 days prior to publication date.

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- Production
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New openings available in above departments for graduate Chemists and Chemical Engineers with 0-7 years' chemical plant experience. Outstanding personal advancement opportunities for those who wish to grow with a medium-sized company in midst of dynamic multi-million dollar expansion program. Shawinigan is already established as a leader in the resins and polymer fields. Send resume and salary desired to:

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Springfield, Massachusetts
All replies held confidential

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M.E. or Ch.E. Degree

Top spot available as Maintenance Supervisor in rapidly expanding New England chemical company in midst of multi-million dollar expansion program. Individual we seek should be in 30's, have maintenance and/or production experience in chemical, petroleum or related fields. We offer responsible management position, excellent professional growth and advancement opportunities and outstanding salary and company benefits program. Send resume and salary requirements to

P-8491 Chemical Week
330 W. 42 St. New York 36, N.Y.

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Experienced polymer chemist for research and product development in resins and other adhesives wanted by established manufacturer in Toronto, Canada. Send complete information on education, experience and salary desired. All replies confidential.

P 8549 Chemical Week
330 W. 42 St., New York 36, N.Y.

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RA 8488 Chemical Week
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PW-8581—Chemical Week
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—SPENT OR CONTAMINATED SOLVENTS
RESIDUES—METAL SLUDGES—
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INdependence 1-4100

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MAIne 2-6970

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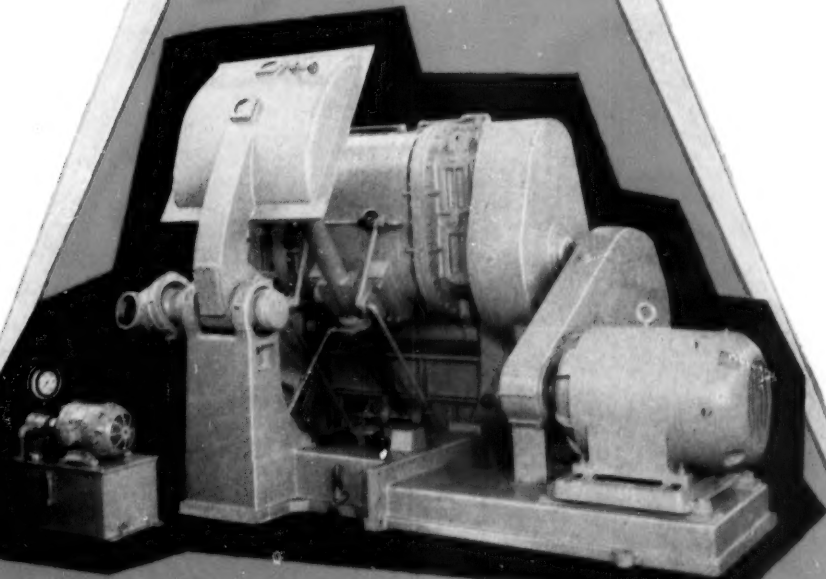
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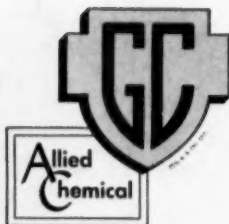
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